

# MSHA Handbook Series

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**U.S. Department of Labor  
Mine Safety and Health Administration  
Metal and Nonmetal Mine Safety and Health  
Coal Mine Safety and Health  
November 2000**

**Handbook Number PH00-I-5**

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## **Accident/Illness Investigations Procedures**

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## PREFACE

This handbook sets forth procedures for the conduct of investigations of accidents and illnesses at the Nation's mines. The procedures in this handbook are intended to serve as organizational, technical, and instructional aids for MSHA's safety and health investigations. Previously issued procedural and administrative instructions for this subject are superseded by this handbook.

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Marvin W. Nichols, Jr.  
Administrator  
for Coal Mine Safety and Health

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Date

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Earnest C. Teaster, Jr.  
Administrator  
for Metal and Nonmetal Mine Safety and Health

---

Date

---

Mark E. Skiles  
Director of Technical Support

---

Date

Approved:

---

J. Davitt McAteer  
Assistant Secretary for  
Mine Safety and Health

---

Date

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PROCEDURE INSTRUCTION LETTER NO. I01-I-2

FROM: MARVIN W. NICHOLS, JR.  
Administrator for  
Coal Mine Safety and Health

EARNEST C. TEASTER, JR.  
Administrator for  
Metal and Nonmetal Mine Safety and Health

JEFFREY A. DUNCAN  
Director of Educational Policy and Development

MARK E. SKILES  
Director of Technical Support

SUBJECT: Revision of Accident Investigation Procedures

#### Scope

This Procedure Instruction Letter (PIL) applies to Mine Safety and Health Administration (MSHA) District Managers and MSHA personnel who are assigned accident investigation duties and/or responsibilities.

#### Purpose

This is a revision to the Accident/Illness Investigation Procedures Handbook, No. PH00-I-5, to clarify the responsibility of MSHA District Managers to assign agency resources needed to investigate accidents in their district. This revision is intended to promote the most effective and efficient use of agency resources while at the same time assuring that the Agency is carrying out responsibilities to fully investigate accidents.

#### Procedure Instructions

1. The appropriate district manager shall assign all accident investigation team members. When determined necessary, the manager, after consultation with the

Accident Investigation Program Manager, may request the services of Technical Support, Educational Field Services and the appropriate Regional Solicitor's Office.

2. Promptly after the on-site investigation, witness interviews and any technical analysis, there will be one accident investigation report written under the direction of the district manager.

The above procedure modifies the current Accident/Illness Investigations Procedures Handbook. These revisions do not apply to the investigation of multiple-fatality accidents. Unless revised by these procedures, all other procedures in the Accident/Illness Investigation Procedures Handbook shall remain in full force and effect.

#### Background

The Accident/Illness Investigation Procedures Handbook No. PH00-I-5 includes instructions for both Coal and Metal/Nonmetal personnel in selecting accident investigation team members, conducting the investigation, and preparing the Agency's report of the accident. These procedures are being revised to clarify the responsibility of MSHA District Managers. The District Manager will determine the appropriate level of technical and professional expertise of the Agency to investigate accidents. These changes are designed to give the District Manager appropriate flexibility with regard to the use of resources based on the nature and complexity of the accident. This revision also clarifies that the results of the investigation will be compiled into one official Agency report.

#### Authority

Title 30, Code of Federal Regulations, Part 50.

#### Filing Instructions

A copy of this PIL should be filed in the front of the Accident/Illness Investigations Procedures Handbook, No. PH00-I-5.

#### Issuing Office and Contact Person

Coal Mine Safety and Health, Accident Investigations Acting Program Manager,  
Glenn Tinney (703) 235-1140

Metal and Nonmetal Mine Safety and Health, Accident Investigations Program  
Manager, Edward Lopez (703) 235-1565

Educational Policy and Development, Rod Breland (303) 231-5434

Technical Support, Elio Checca (703) 235-1570

Distribution

MSHA Program Policy Manual Holders

**MINE SAFETY AND HEALTH ADMINISTRATION  
ACCIDENT/ILLNESS INVESTIGATIONS PROCEDURES HANDBOOK**

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## **Chapter 1 - Introduction**

The objective of an accident investigation is to determine the root cause(s) of the mine accident and to utilize and share this information with the mining community and others for the purpose of preventing similar occurrences. The Mine Safety and Health Administration's (MSHA) accident investigations include determinations of whether violations of the Federal Mine Safety and Health Act of 1977 (Mine Act) or implementing regulations contributed to the accident. In addition to providing critical, potentially life-saving information, the findings of these investigations provide a basis for formulating and evaluating MSHA health and safety standards and policies.

### **I. Purpose**

This handbook provides direction for the investigation of accidents and other occurrences involving health and safety in coal and metal and nonmetal mines pursuant to the Mine Act. MSHA's accident investigation procedures are designed to result in efficient and orderly collection of all information relevant to a mining accident and to provide guidance for investigators in determining accident causes. Upon conclusion of the investigation and review and analysis of all relevant information, MSHA issues a report describing its findings and conclusions. The purpose of the report is to disseminate this information to the mining community and others for purposes of accident prevention.

### **II. Authority**

The Federal Mine Safety and Health Act of 1977, Public law 91-173, as amended by Public Law 95-164, requires that authorized representatives of the Secretary of Labor make investigations in coal and other mines for the purpose of obtaining, utilizing, and disseminating information relating to the causes of accidents.

Authoritative sources include:

1. The Federal Mine Safety and Health Act of 1977
2. Title 30, Code of Federal Regulations (CFR)

### III. Responsibilities

- A. Notification of Accidents. Any accident, as defined at 30 CFR 50.2(h), must be reported immediately to MSHA by the mine operator. Generally, such notification is made to the MSHA district or local field office. If the appropriate MSHA district or field office cannot be reached, mine operators should call (800) 746-1553, a 24-hour toll-free number established by MSHA. The fact that there are certain types of accidents not immediately reported to Headquarters by MSHA districts does not in any way relieve the mine operator from notifying MSHA immediately of all accidents, as defined by the standard.
- B. Accident Response
1. Mine Emergencies. Each district must maintain an up-to-date Mine Emergency Response Plan that outlines duties and responsibilities of district personnel during a mine emergency. When an accident requiring an emergency response occurs, the District will follow the procedures for action and notification contained in its Mine Emergency Response Plan. The Headquarters Mine Emergency Response Plan addresses duties and responsibilities of headquarters officials during an emergency. The appropriate Administrator will appoint an investigation team under the direction of the Accident Investigation Program Manager when a mine accident results in more than two fatalities. The Administrator may also appoint an accident investigation team in other emergency situations.
  2. Non-Emergency Accidents. The District Manager shall promptly evaluate non-emergency accidents and inform the mine operator (1) whether an investigation will be made; (2) the approximate date and time of the investigation; and (3) the requirements under §103(j) and Part 50, including the operator's responsibility to take appropriate measures to prevent the destruction of evidence that would assist in the investigation of the accident.

If the accident is to be investigated, the District Manager shall direct the local office supervisor or available inspector to travel to the mine and to issue such orders as appropriate to ensure the safety of any persons at the mine. The District Manager should also initiate preparations for providing logistic support for an accident investigation team.

The responsibilities of the person assigned to secure the accident site are discussed in Section V., Orders to Ensure the Safety of Any Person.

The District Manager also will appoint the investigation team leader and, when needed, assign other enforcement personnel from within the District to assist the team leader. Members of the accident investigation team should be personnel assigned to an inspection work group that does not regularly inspect the affected mine.

The Administrator may choose to include a Headquarters and Technical Support representative as members of an accident investigation team. The District Manager will be notified and the individuals identified. Every attempt will be made to coordinate the arrival and participation of the Headquarters and Technical Support representatives so as not to delay the accident investigation. This does not mean that necessary activities cannot proceed until the representatives arrive, but that consideration should be given to allowing the investigation group to function as a team.

Upon completion of the on-site investigation of a fatal accident, the Accident Investigation Program Manager will be advised by telephone of any preliminary findings or conclusions.

Representatives of the Office of Technical Support are especially valuable to the accident investigation team when their expertise is needed to assist in the interpretation and analysis of specifications or other technical information. The District Manager will consult the appropriate

Accident Investigation Program Manager regarding the participation by representatives of the Office of Technical Support. For more detail regarding the role of Technical Support in accident investigations, see Section VII., Technical Support.

When a single fatality accident occurs, the District Manager shall notify the appropriate Regional Solicitor's office. A regional attorney will be assigned to provide legal support to the accident investigation team.

For more information regarding the involvement of the Regional Solicitor's Office, refer to Section VIII., Office of the Solicitor.

3. Handbook Application. The investigation procedures described in this Handbook are generally applicable to all fatal accident investigations. These procedures should be used as a guide in the investigation of all other accidents.

C. Headquarters Notification Instructions.

1. Accidents Requiring Immediate Headquarters Notification. Upon learning of the occurrence of any of the following categories of accidents, the District shall immediately notify the appropriate Accident Investigation Program Manager by the fastest means available. Where a fatal accident or entrapment occurs after normal business hours, the current notification list provided by the respective Administrators shall be followed. The categories are:
  - a. a death of an individual at a mine or an injury to an individual at a mine which has a reasonable potential to cause death;
  - b. an unplanned mine fire not extinguished within 30 minutes of discovery;
  - c. an unplanned ignition or explosion of gas or dust;

- d. an unplanned inundation of a mine by a liquid or gas;
- e. an entrapment of any person(s) for more than 30 minutes or any other accident requiring mine rescue and recovery; and
- f. any physical event at a mine which causes death or bodily injury to an individual not at the mine at the time the event occurred (e.g., rock displaced by blasting which injures a person not on mine property).

2. Accidents Not Requiring Immediate Headquarters Notification. Upon learning of an accident that does not require immediate notification of Headquarters, the District Manager shall determine whether or not the circumstances warrant an investigation. If it is determined that an investigation is to be made, the instructions in Section III, paragraph B.2, "Non-Emergency Accidents," apply.

D. Preliminary Reports. A Preliminary Report of Accident (MSHA Form 7000-13) is required for all accidents or occurrences that are immediately reportable. The District will provide the Preliminary Report as quickly as possible, but no later than 48 hours after initial notification of the accident. In case of a fatal accident, the report must include on a separate page the name, address, relationship, and telephone number for the victim's next of kin, and the ages of any dependent children. Also, any equipment involved in the accident must be identified. Complete instructions for completion of the Preliminary Report can be found in Chapter 4, Section II, Preliminary Report of Accident.

This data is to be submitted via telecopier to (703) 235-1517 for CMS&H or (703) 235-9173 for M/NM or phoned to the Management Office at (703) 235-1550 for CMS&H or (703) 235-8480 for M/NM.

Chapter III., Investigations of Accidents, addresses the various report formats available to the investigator.



#### IV. Authority to Issue Statement

Unless there is an MSHA press officer present, the senior MSHA official at the scene of an investigation and at any related interviews is authorized to issue statements relative to the investigation. He or she may also refer questions from the press to the Office of Information and Public Affairs (OIPA) in Arlington, Virginia, at (703) 235-1452. The Director of OIPA is authorized to issue statements of fact to the press. Press statements can be issued jointly with State authorities if they concur. MSHA officials at the accident scene must ensure that the appropriate Accident Investigation Program Manager is adequately informed of and kept up-to-date on the progress of the investigation and the fact that a press statement has been made. Where appropriate, the team leader may request that an MSHA Public Affairs Officer be assigned to the investigation.

#### V. Orders to Ensure the Safety of Any Person

The inspector must exercise discretion and good judgment when using the broad authority provided by the Mine Act, and the following instructions are provided to assist in exercising this discretion.

- A. §103(k) Orders. In the event of an accident at a mine, §103(j) and §103(k) of the Mine Act state, in part, that an authorized representative may issue such orders as appropriate to ensure the safety and health of any persons at the mine.

When, as a result of an accident, a mine condition exists that threatens the safety and health of the miners, the Authorized Representative will generally utilize §103(k) to ensure the safety of any persons in the mine. A §103(k) order does not preclude the issuance of a §107(a) order if an imminent danger is found to exist.

The dangers to miners are obvious where a fire, explosion, or inundation has occurred in any underground mine, and a §103(k) order shall address the safety of the miners in the entire underground portion of the mine.

In instances where any accident has resulted in death or serious injury to a miner, a §103(k) order shall include all areas of the mine where the inspector believes that a hazardous condition or practice related to the accident is likely to exist. In some instances it will be obvious that the conditions are peculiar to the accident site and, therefore, the Section 103(k) order would not apply to areas other than the accident site.

A §103(k) order should remain in effect until a systematic evaluation of the conditions and safety practices is conducted, and a determination is made that hazards similar to those that caused or contributed to the accident have been eliminated. The evaluation can be made prior to the accident investigation or concurrent with it. After this evaluation and determination have been made, the §103(k) order may be modified to permit an area of the mine to resume operations, modified to include other areas, or terminated if appropriate.

When a §103(k) order is issued, the mine operator is required to obtain approval of an MSHA representative, in cooperation with the appropriate State representatives when feasible, of any plan to recover any person in the mine or to recover the mine or return the affected areas of the mine to normal. When a §103(k) order is in effect, the mine operator must obtain MSHA's approval before allowing anyone, even individuals exempt from other withdrawal orders by §104(c), to enter the affected area of the mine.

- B. §103(j) Orders. In the event of a mine accident where rescue and recovery work is necessary, Section 103(j) grants MSHA broad authority to take whatever action, including the issuance of orders of withdrawal, is deemed appropriate to protect the life of any person. Where appropriate, MSHA may supervise and direct the rescue and recovery activity. Normally, however, the inspector will utilize §103(k) instead of §103(j).

The primary purpose of a §103(j) order is to prevent additional injuries when it becomes obvious that unsafe procedures are being followed in the rescue and recovery efforts. **Whenever possible, the**

inspector/investigator should contact his or her District or Assistant District Manager or the Administrator, whoever is appropriate, prior to issuing a §103(j) order of withdrawal.

- C. §107(a) Orders. If an inspector or investigator determines that an imminent danger exists, a §107(a) order should be issued forthwith, regardless of any other orders that have been issued. Because the purpose of a §107(a) imminent danger order is to immediately remove miners from exposure to serious hazards in the mine and to prevent miners from entering such hazardous areas, an imminent danger must be actually impending at the time an order is issued. It is not necessary to issue citations/orders for violations that contribute to the imminent danger at this time, as they can be more appropriately addressed later in the investigation.

## VI. Discussion of Citations and Orders

The accident investigation must determine whether there is compliance with all health and safety standards, and in this regard is no different than a regular mine inspection. Citations and/or Orders must be issued for violations found. Violations found during an investigation should be completely evaluated and documented prior to the issuance of a citation or order. This evaluation and documentation is extremely important as significant penalties may be assessed for the violations. For that reason, the citations or orders should not be issued until all the related facts are available. At that time they should be promptly prepared and issued.

Citations and orders issued for violations that contribute to a mine accident will be contained in the accident report and coded as part of the investigation. Citations and orders issued for violations observed during the investigation that were not contributory to the accident will be included in a separate inspection report and coded for that activity.

Prior to citations or orders being issued for contributory violations, the District Manager shall provide draft copies of the intended issuances to the following offices:

- \* The appropriate Regional Solicitor or Associate Regional Solicitor
- \* The appropriate Accident Investigation Program Manager
- \* The appropriate Chief, Division of Safety or Division of Health

A conference shall then be held between the District Manager and representatives of the above offices to discuss the merits of the proposed issuances.

Copies of any citations and orders subsequently issued for contributory violations shall be sent to the above offices as well as the Headquarters Assessment Office promptly after issuance. Included with the Office of Assessments' copy will be the appropriate referral form(s).

Citations and orders that involve potential willful or knowing violations will be evaluated, routed, and handled the same as similar violations cited during inspections. A special investigation will not be conducted as part of the accident investigation. However, information and documentation obtained during the accident investigation is typically available to the special investigators.

## VII. Technical Support

- A. General. Technical Support's engineering and scientific expertise and analytical capabilities should be utilized to the greatest extent practical, and representatives of **Technical Support will participate in all fatal accident investigations.** Technical Support personnel may also participate as part of the investigation team of other selected investigations.

Technical Support personnel are members of the accident investigation team and will participate in the preparation and review of the investigation report. Technical Support involvement may be to help author the entire report or, in most cases, to provide the lead accident investigator with a brief summary of the technical discussion of the item or area investigated. The summary can be in the form of 'bullet' statements or a few short paragraphs. Only one report, the Agency's "Accident Investigation Report," shall be

generated with respect to the details and circumstances surrounding the accident.

- B. Laboratory or Analytical Studies. In some cases, the role of Technical Support may also include the analysis and/or testing of evidence collected by the investigation team. The District Manager will coordinate requests for laboratory or analytical studies with the appropriate Accident Investigation Program Manager. Procedures (protocol) for all testing or studies will be agreed upon by Technical Support, the District Manager, and the Accident Investigation Program Manager prior to beginning the test or study. This form of participation typically results in a test report. A test report that is sufficiently concise can stand on its own merit. However, an Executive Summary will normally accompany the full test report. The Executive Summary will be placed as an appendix of the Accident Investigation Report. The Executive Summary should explain how interested persons may obtain a copy of the full report.

#### VIII. Office of the Solicitor

When a single fatality occurs, the District Manager shall immediately notify the appropriate Regional Solicitor's Office. A Regional attorney will be assigned to provide legal support to the accident investigation team during its investigation and report writing and with any enforcement decision-making which follows.

The responsibility for the accident investigation and subsequent enforcement action(s) remains with MSHA; however, the regional attorney's early involvement should improve the quality and efficiency of the investigation, particularly in witness interviews and any subsequent enforcement action(s). For example, content of witness interviews should be discussed with the Regional attorney before and during the interviews. These discussions should be conducted between the attorney and other members of the investigation team in a mutually agreeable manner so as not to be disruptive to the interview process. Likewise, should particular enforcement action(s) related to the accident investigation become necessary, the appropriateness of

these should be discussed with the regional attorney before the enforcement action is taken.

Multiple-fatality accidents will be coordinated at Headquarters level, and legal support for these will be provided by the Mine Safety and Health Division of the Solicitor's Office.

## Chapter 2 - Jurisdiction and Chargeability

### I. General

The responsibility for resolving questions of jurisdiction and chargeability rests with Agency officials who are not normally present at the accident site. It is imperative, therefore, that on-site investigators confronted with questions of jurisdiction and/or chargeability gather all pertinent data and relay it promptly through appropriate channels to the District Manager.

The Preliminary Report of Accident for all deaths on mine property must be forwarded to the Headquarters Office, regardless of whether questions of jurisdiction or chargeability exist. If the death is ultimately determined to be outside of MSHA jurisdiction or not chargeable to the mining industry, Headquarters will correct the record with proper notations. If jurisdiction or chargeability is affirmed, a fatal case number will be assigned and all pertinent data recorded.

### II. Jurisdiction

Questions of jurisdiction may arise during the initial notification of an accident to MSHA or upon arrival of the accident investigators at the site. If there is uncertainty regarding jurisdiction, the Agency representative must gather all related information and relay it to the District Manager, who shall discuss it with the appropriate Accident Investigation Program Manager. The primary concerns in this determination are: 1) the specific location of the accident in relation to the boundaries of the mine property; and 2) where mill accidents are concerned, details of the milling process involved.

If MSHA jurisdiction is affirmed, the accident investigators must be notified immediately and the investigation expanded. If the District Manager determines that the accident has occurred in the jurisdictional area of another agency, the other agency must be notified promptly and all accident related data transferred to that agency. The District Office must then terminate the accident investigation and advise the appropriate Accident Investigation Program Manager so that any Preliminary Report of Accident already submitted can be removed from further consideration.

Note that MSHA has concurrent jurisdiction with OSHA in some situations. Where clarification is necessary, the District Manager should consult with the Accident Investigation Program Manager.

### III. Chargeability

The District Manager shall initially be responsible for making a determination about whether a death is to be counted as a reportable death in MSHA's official statistics. All decisions by the District Manager shall be reviewed by the Administrator. The Administrator may refer particular cases to the Fatality Review Committee for decision. Decisions by the Administrator or the Fatality Review Committee shall be final, subject to review by the Assistant Secretary.

If a District Manager is reasonably certain that a death at a mine is the result of natural causes, the investigation to gather information for a chargeability determination may be conducted by immediately available personnel. In such cases, it will be appropriate to assign the investigation to local field personnel who may regularly be involved in inspection activities at the mine.

When there is reason to question whether a fatality is chargeable to the mining industry, the accident investigator shall immediately gather all available related information and relay it to the District Manager. Additional chargeability information which becomes available during conduct of the accident investigation shall also be forwarded promptly so that the chargeability determination can be based on all available facts.

All accident investigations should continue while the issue of chargeability is being determined. This will aid in the preservation of information and evidence and may assist in determining chargeability. If the death is determined to be chargeable to the mining industry, a fatal investigation report shall be prepared.

If the District Manager determines that a death should not be charged to the mining industry, a memorandum report requesting a chargeability concurrence determination shall be submitted to the Administrator within 30 working days of the date of the death. The memorandum report must describe



in detail the activities of the person prior to the time of death and any related information which addresses chargeability; see Paragraph III.A. below. For deaths involving natural causes, supporting documents must include a copy of the death certificate and, if possible, the autopsy report, the coroner's report, or the statement of an attending physician. In addition, any information that clarifies physical stress, prior medical history, or medication should be included in the report. If a copy of the autopsy report is not available when the memorandum report is due, it may be forwarded at a later date.

- A. The Fatality Review Committee. The Fatality Review Committee is a three-member Committee of experienced MSHA managers, one of whom serves as Committee Chairperson. The members review the facts and circumstances surrounding a questionable death to determine whether it is chargeable to the mining industry.
- B. Deaths Requiring a Decision by the Fatality Review Committee. When the District Manager or Administrator determines that a death on mine property warrants a decision by the Fatality Review Committee, the following memorandum report format should be followed:
  - 1. The memorandum should be written from the investigator to the District Manager who will forward it to the Administrator with a cover memorandum stating the District Manager's determination of whether or not the death is mining related. After a review by the Administrator, the information will be transmitted to the Chief, Office of Injury and Employment Information, for distribution to the Fatality Review Committee.
  - 2. The subject of the memorandum should be: Investigation of Death at Company Name, Mine Name, I.D. Number, Location (including the county and state), and date of the occurrence.
  - 3. Give the victim's name, age, total mining experience, time and date of death, and cause of death.

4. State the dates of the investigation and list the names of persons present during the investigation or who provided information.
  5. Give a narrative description of the activities of the victim prior to the time of the accident, starting from the beginning of the shift.
  6. List the victim's regular occupation, the occupation at the time of the accident, and the experience on the job being performed when the accident occurred. Duties normally performed by the victim in the regular occupation should also be given. Any duty that would not be considered routine should be identified.
  7. In order that the possibility of overexertion may be evaluated, state distances traveled by the victim, grades negotiated, weights lifted, etc. Specify time intervals between the performance of any arduous tasks and the time of the accident.
  8. Environmental factors that may be relevant such as temperature extremes, elevations, noise levels, etc., should be given. This would include the presence of any noxious gases or a lack of sufficient oxygen.
  9. Obtain the victim's previous medical history, if available. Also, obtain the statement of death from a medical officer including statements indicating that death was aggravated by or the result of tasks performed. If the attending physician will not make such statements, the report should so indicate. Attach copies of death certificates and autopsy reports, when available.
- C. Additional Information. Whenever any person discovers additional information that should be considered in the Committee's review, the information should be sent to the appropriate District Manager. He or she will verify the information, to the extent possible, and

forward it to the Fatality Review Committee Chairperson through the appropriate Administrator. In the event a case has already been decided when additional information is submitted, the Committee Chairperson will review the new information and reopen the case if appropriate.

## Chapter 3 - Investigations of Accidents

### I. General

MSHA's accident investigations are conducted by an experienced team of investigators and typically involve three phases: (1) an on-site physical examination of the accident scene; (2) interviews with witnesses who have knowledge of the conditions or practices which may have contributed to the accident; and (3) analysis and testing of mining equipment or material which may have been involved in the accident.

The causes of the accident are determined after a complete review and analysis of all the facts and evidence.

### II. Investigation Participants

- A. Participants During the Physical Examination of the Accident Scene. The physical examination of an accident site is conducted under MSHA control in cooperation with the state agency with authority over matters of miner safety and health, the mine operator, and the miners' representative.

Mine operators have a right to accompany MSHA personnel during the physical examination of the accident site. The mine operator should be asked to designate a representative for this purpose.

The Mine Act provides rights for miners' representatives to participate in enforcement-related activities of MSHA. In the accident investigation context, these provisions are construed to include miner representative "walk-a-round" rights during the physical examination of accident sites. In most instances, the miners' representative identification is a straight-forward matter and they are easily identified. A mine that has not had a bonafide representative of miners prior to the accident can create unusual situations where miners at the mine request representation after the accident. Part 40, 30 CFR, prescribes the procedures for miners to identify their representative(s). Miners should be assured that their participation in the designation of a representative will be treated as confidential to the

extent allowed by law if they request that their identity be kept confidential. In unusual situations, contact the Accident Investigation Program Manager for further information regarding the identification of miner's representatives.

Occasionally, an investigator may encounter multiple miner representatives or multiple operators, such as independent contractors, participating along with the mine operator. These multi-entities may require that the various representatives be divided into workable groups and activities scheduled to avoid creating confusion or disruptions. If an unusual situation results in confusion, or the investigator fears disruption of the investigation, the District Manager should contact the Accident Investigation Program Manager for guidance.

MSHA recognizes that many states have responsibility and authority under state law for the investigation of mining accidents. For this reason, MSHA cooperates extensively with state mining officials in the performance of its investigations.

- B. Participation During Interviews of Witnesses. Accident investigations include interviews with witnesses who have knowledge of the conditions or practices which may have contributed to the accident. The participation of other parties in such interviews is discussed in detail in Section VI. H. of this Chapter.
- C. Participation During Laboratory Analysis. MSHA performs testing of equipment and other physical evidence as necessary to identify contributing or causative factors. The participation of other private parties in these activities is contingent on a single consideration: will such participation, in MSHA's judgment, produce a more accurate determination of the cause of the accident. State officials, representatives of the mine operator, and miners' representatives may observe in most cases.
- D. Participation During Review and Analysis of Evidence. MSHA carefully evaluates and analyzes all the facts and evidence gathered during the investigation before reaching a determination as to the cause or causes of a

mine accident. The accident reports prepared by the mine operator, representatives of miners, and the state mining agency may be considered during this portion of the investigation. However, persons other than MSHA employees, MSHA consultants, or representatives of the Solicitor Of Labor, shall not participate in the decision-making process of the accident investigation team.

### III. Investigation Team

When investigating fatal accidents, the investigation team shall have a team leader who has been thoroughly trained in accident investigation techniques and procedures. The team leader's training and experience must also include knowledge of the proper procedures for the collection of evidence and maintaining a chain of custody. Other team members may include technical specialists, engineers, supervisors, or other inspectors or investigators, as needed.

Neither the team leader nor the team members should have been responsible for inspections or plan approvals within the previous 6 months at the mine where the fatal accident occurred. Such persons can be used in an advisory capacity to provide information about conditions and practices at the mine. Moreover, enforcement personnel assigned to the district or office responsible for the mine may be assigned duties to ensure that the mine is safe and is maintained safe for the investigation team to do its work. In situations where the local inspector(s) is utilized, the inspector should perform the assigned tasks apart from the investigative activities.

### IV. Involvement of a Special Investigator

MSHA's accident investigations are separate and distinct from special investigations. There are circumstances, however, where a special investigator may be assigned either (1) as a member of the accident investigation team or, (2) to accompany the accident investigation team. The function of the special investigator in each role is somewhat different as described below:

- (1) Unless assigned as the team leader, the special investigator, as a member, is to be available for any assignments from the team leader that are

necessary for the timely completion of the accident investigation. The duties of the special investigator assigned as a member of the team are to function as an accident investigator. However, he or she should be alert to the findings of the investigation and, when appropriate, make timely recommendations to the team leader for a special investigation.

The accident investigation team leader is responsible for immediately notifying the District Manager when conditions are found that indicate the need for a special investigation.

- (2) A Special Investigator, or a person who has received special investigations training, may also be assigned to accompany an accident investigation team. The special investigator's duties in this capacity are to observe all pertinent conditions and monitor all statements to determine if a possible §110 violation may have occurred.

If, during the course of the accident investigation, the Special Investigator accompanying the team believes that a §110 violation may have occurred, he or she shall:

- S     inform the accident investigation team leader at the earliest possible moment that a §110 violation may have occurred;
- S     advise the accident investigation team leader of the requirements for the preservation of evidence; and
- S     notify the Senior Special Investigator (SSI) as soon as possible that a possible §110 violation may have occurred.

When in concurrence, the SSI shall then recommend to the District Manager that a special investigation be initiated.

If the accident investigation team is comprised of personnel external to the district, the accident investigation team leader, the Accident Investigation Program Manager, and the Chief, Technical Compliance and

Investigation Division (TCID), should also be notified and participate in the decision to open a special investigation.

The decision to actually initiate a special investigation is made by the District Manager.

In the event that a §110 violation appears to have occurred, the participation of the Special Investigator as a member of the accident investigation team shall be terminated if the investigator will be assigned to conduct the special investigation. However, the special investigator may continue to participate in the accident investigation if the special investigation is assigned to another investigator.

If a special investigation is opened prior to completion of an accident investigation, the two investigations shall be coordinated by the District Manager.

## **V. Organization and Planning**

- A. General. The successful accomplishment of an accident investigation will depend upon how well it is planned, organized, and conducted. The team leader is responsible for organizing and directing the efforts of the team to ensure that the investigation is thorough and completed in a timely manner.
- B. Investigation Plan. The investigation plan is a systematic procedure which ensures a continuity of effort from the preliminary examination of the accident site to the submission of the final report. This phase provides the opportunity for the team leader to organize the team into groups for the investigation. This should be accomplished in a team meeting before departing for the accident site. This meeting should ensure that each team member knows the area of the investigation he or she is responsible for, the initial task to be accomplished, and the data elements that need to be collected to complete the report. It has been found advantageous, when possible, for the organized groups to do a "walk-through" of the accident area prior to the collection of information or evidence. The investigation team should also be briefed by local MSHA personnel on the status of any preliminary actions.



Where rescue and/or recovery activities have occurred, the investigators should consider informal debriefing of mine rescue teams, MSHA personnel, and other persons involved in such work. These persons can be formally interviewed if necessary.

Whenever possible a member of the investigation team should proceed to the hospital where the injured miner(s) have been taken to obtain informal statements, if permitted by medical attendants. Also, when the team has been identified in time, a member should be present at the morgue when personal effects of the victim(s) are being inventoried. In instances where team members have not been selected, the local District Manager should assign a special investigator to the morgue for this duty. A death certificate and, where available, an autopsy report will be obtained as a part of each fatal accident investigation.

- C. Orientation. The team members shall obtain copies of all relevant mine information from MSHA records as part of the investigation. This information will be analyzed along with records and information obtained at the mine.

A meeting of all interested parties, including representatives of the miners and the operator, should be held in much the same manner as a pre-inspection conference. This meeting should be held as soon as possible after the investigation team arrives at the mining operation. The discussion should include how the investigation will proceed. All parties should be advised not to disturb any part of the accident scene and not to remove any items from the accident scene without prior MSHA permission. If permission is granted, an MSHA representative must be present to identify and determine exactly what is removed.

Additionally, all participants should be advised of precautionary health or biological procedures to be followed while in the accident area. Precautionary health and biological procedures will be addressed in separate MSHA instructions.

- D. Accident Investigation Administrative File. The gathering of facts and materials to be used in determining the causes of the accident is the primary purpose of the accident investigation team. Therefore, team members must be acutely aware of the various types and forms of information or evidence available, when and how it should be gathered, and how it must be transferred, stored, and recorded. Any information relevant to the accident, whether it be in the form of physical evidence such as methane detectors, documentary evidence such as records and plans, or testimony taken at the investigation, shall be collected and preserved in a systematic manner and stored at a central location designated by the investigation team leader. This compilation of data is the Accident Investigation Administrative File which contains the information that will be used to support the investigation conclusions. A running index of the file contents will be maintained to facilitate its use.

## VI. Technical Investigation

- A. General. Team members, individually or collectively, shall investigate and observe all conditions and practices relevant to the occurrence under investigation. Detailed records shall be maintained of all observations and information obtained to document the investigation.

The investigators must determine what happened, when and where it happened, and who was involved. They must also determine how and why the incident occurred so that they will be able to make accurate conclusions.

It cannot be overstated that the primary purpose of an accident investigation is to determine the causes of an accident to prevent similar occurrences. Rather than identifying and correcting only direct causes, the investigation should go much farther and identify the **root** causes of accidents. When underlying root causes are recognized and eliminated, unsafe work procedures and conditions may also be eliminated. An example is as follows:

A roof bolting machine operator used a bent and broken-off section of a bar for taking down a piece of loose roof material. Due to the inadequate length and condition of the bar, the miner was forced to work too close to the piece of loose roof. The piece of loose roof fell, resulting in fatal injuries.

A superficial analysis of the accident would indicate that the employee's work position was at fault; the bar of inadequate length did not allow for "the removal of loose material from a position that will not expose the person performing this work to injury from falling material," an obvious violation of a mandatory standard.

However, a close investigation may reveal that the practices and conditions surrounding the accident included using the bar as a matter of routine and practice because the mine operator had no replacement bar on the working section; the condition of the bar had been directly observed by, and reported to, the operator; however, despite the operator's full knowledge of the need for them, no replacement bars existed either in the warehouse or on order. Thus, the root cause of the accident, in this instance, centered around the indifference and inaction of the mine operator following the observation and reporting of unsafe conditions.

In this case, the root cause actually set up the unsafe work procedure. Only after root causes have been properly addressed can the probability of a reoccurrence be eliminated or reduced.

As the investigation progresses the investigators will inevitably form conceptions about the causes of the accident. However, a complete and thorough accident investigation must always be structured to properly identify, explore, and develop these root causes in the interest of accident reduction or elimination. Rather than acknowledging or accepting them on their own merit, the investigator must give full consideration to

related or underlying conditions, practices, or circumstances. The inspector must constantly ask "why" these occurred and, if they had not existed, would the likelihood of a reoccurrence be reduced or eliminated. Regardless of the passage of time, investigators must attempt to discover what decisions, considerations, or actions led to or contributed to the underlying or root causes of the accident.

- B. On-Site Investigation. Although preliminary information would normally already have been obtained and reviewed, the accident investigation does not get underway until the investigation team has observed the accident scene. It is here that both material and human factors may first become apparent and the team gets an overview of the accident.

Investigators will observe any conditions, locations, and/or equipment pertinent to the accident, and they mentally begin the process of reconstructing the sequence of events that led to the accident.

A sketch may suffice in the majority of cases; however, a scaled drawing may be necessary to reflect pertinent details of the accident scene. Photographs, if conditions permit, and video camera footage shall be taken as a part of the investigation. A compass direction should be plotted, if relevant, if it will be used in the text of the report. All dimensions and distances necessary in clarifying the accident should be measured and plotted on a sketch. Although some distances can be subsequently reported as approximations, all measurements should be made and recorded to the smallest tolerance practical unless the location of an item is not a factor in the accident. All physical evidence at the accident site that may be relevant to the cause of the accident shall be documented.

- C. Human Factors. An evaluation of the actions or inactions of personnel involved in the accident must be made to determine compliance with applicable regulations. This evaluation should also determine compliance with formal standard operating procedures, or what is generally accepted as common practice. All actions relevant to the accident must be documented so

that a chronology of the events which occurred before, during and, where appropriate, after the accident, can be developed. The foreman's actions pertaining to the accident area or work activities of the victim must also be ascertained.

The practices and procedures of the operation as they affect the accident must be evaluated. Some subjects to evaluate are listed below.

1. Communication. Did a misunderstanding or lack of communication have a bearing on the accident?
  2. Work Procedures. Did work procedures have a bearing on the accident? Were work procedures adopted, and were they followed? (Note: Adopted work procedures do not have to be in writing - all that is necessary is that management and employees identify the adopted procedures.)
  3. Compliance With Safety Standards. Did noncompliance with safety standards have a bearing on the accident? Did noncompliance with a company rule have a bearing on the accident?
  4. Personal Factors. Did a lack of knowledge or skills on the job have a bearing on the accident. Whether or not the victim was trained in accordance with the regulations is only part of the story. The important factor is whether the evidence indicated that the victim understood the task and hazards related to it.
  5. Use of Tools or Equipment. Did the procedures for using tools or equipment have a bearing on the accident?
  6. Distractions. Did some event or circumstance result in apparent loss of concentration in the performance of a task or job?
- D. Management Organization. Investigators should determine the management structure of the operation. This includes supervisory personnel directly affecting the instructions given the miners, how work procedures are established at the mine, and the methods used for

mine planning. The responsibility for conducting mine examinations, as well as the monitoring by upper management of such examinations, needs to be determined. Likewise, the company's safety management procedures and organization should be examined to determine its function in relation to the accident. Responsibility for mine/workplace design and equipment selection and maintenance should also be examined for any possible relationship to the accident.

As part of the accident investigation, it is important to determine if entities other than the identified mine operator played a significant role in operating the mine. It may be necessary to gain additional information during the accident investigation if there is reason to believe that an entity not identified as an "operator" is involved in the control or operation of a mine. Circumstances surrounding the operation of a particular mine (e.g., entities with few employees and with relatively short histories of operation at the mine site, entities who have lease agreements with other entities involved in mining, etc.), as well as information derived from local MSHA inspectors, may raise concern regarding the identity of the "operator" or the existence of multiple operators.

In such situations, efforts should be made during the investigation and interviews to ascertain the identity of all of the entities and individuals that are actually controlling the mining operation -- both those directly involved in the operation and those overseeing the operation. Likewise, in situations where independent contractors are present at the accident site, the relationship of the independent contractors to each other and the production operator, as well as the role that the contractors may have played in the accident, should be evaluated. If information suggesting that an entity other than the one listed with MSHA as the "operator" may also be involved in the operation of the mine, such information should be included in the accident investigation report.

Since a determination regarding the status of other entities as an "operator" will often involve an analysis of legal issues, it will be necessary to consult with the Office of the Solicitor.

E. Environmental Factors. The effect of the mine environment on the accident must be investigated, such as:

1. the coal or metal and nonmetal seam height;
2. the mine roof or hanging wall conditions;
3. wet and muddy conditions that may have existed;
4. climatic conditions;
5. methane liberation;
6. any coal or rock outbursts;
7. road grades and conditions; and
8. float coal or other dusts affecting visibility.

Environmental conditions such as contaminants, noise, artificial illumination, radiation, and the adequacy of the work surface or space should also be assessed for their possible influence on personnel or equipment involved in the accident.

The investigation should include an evaluation of other environmental factors that may have played a part in the accident. Weather conditions must be considered as possible causation factors. Precipitation, temperature, wind, or lightning may affect the control or operation of equipment, reduce visibility, or result in undetected hazards. However, an element or condition must not be considered a factor just because it exists; its contribution to the accident must be verified.

F. Physical Factors. An important aspect of many accident investigations is an evaluation of the physical factors involved.

For example, the design of the mining system, facilities, or equipment must be evaluated for its effect on the cause of the accident. The size and shape of pillars may affect roof stability. The

inadequacy of a ventilation system may be a result of its design. Selection of equipment may be a factor if the equipment is unsuited to the mine or mining system. The maintenance of the equipment or tools definitely can be a factor in an accident. The condition of the tools and equipment and their role must be evaluated. The use of protective clothing or devices must be evaluated to determine if their absence, condition, or improper use may have been a factor. It is critical to the success of the accident investigation that the investigator have an open mind to the physical factors that may have had a role in the accident.

Material (e.g., equipment or components, structures, etc.) failures or malfunctions which may have impaired the operational capabilities of a vehicle or machinery or contributed to a structural failure must be assessed. Failure can be the result of exceeding the design capability or operating limits of the item in question, or the equipment, structure, component, or part could fail by: (1) becoming completely inoperable; (2) operable, but being no longer able to perform its intended function satisfactorily; or (3) deteriorating to the point where it is unreliable or unsafe for continued use.

The causes of failures must be identified. Damage that occurred during the accident should be identified in detail, and/or specimens gathered for analysis to determine the mode and sequence of failure.

A proper evaluation is dependent upon determining the difference between failures that may have caused the accident and damage caused by the accident. The approach to identifying physical failures is usually not as difficult as it may appear. The procedures to be followed are generally the same for all accidents, regardless of damage. The first step in identifying failures or malfunctions is to document the most obvious evidence available at the accident site by taking notes and photographs and by drawing diagrams. Even though the investigation team begins by examining components which most probably failed, this examination is not complete until all major components and systems have been examined for evidence of failure. In cases where preliminary evidence (e.g., personnel statements)



indicates that no failures or malfunctions occurred, the examination is still recommended. The purpose of the examination in this case would be to substantiate that a failure did not occur.

Once the investigation team has identified or at least suspects a failure or malfunction, it must continue the search for evidence of the cause of failure. For example, could the lack of maintenance have caused a failure of this part, component, or system? To answer questions like this, the investigation team must examine maintenance records and operation logs and evaluate any maintenance factors which may have contributed to the failure.

Components which the investigation team has identified or suspects as having failed may need to be shipped to an analysis facility. This type of analysis is important where the investigation team may not have the capability to determine why a component failed. Technical Support shall be utilized whenever possible for these evaluations.

Equipment manufacturers can be utilized as a source of information concerning the design, operation, and maintenance of equipment involved in the accident. It may also be useful to consult with the manufacturer when making determinations relative to equipment failure or malfunctions. Contact with the manufacturer shall be coordinated with the appropriate Accident Investigation Program Manager.

The lack of special tools or equipment may have been a factor or have a bearing on the accident. The investigators should be alert to and evaluate indications that the lack of some particular device or equipment may have been a factor.

- G. Company Records. Several areas of records must be explored and documented as a part of the investigation.
  - 1. Mine Performance Information. The accident history and compliance record for the past year should be obtained and evaluated during the accident investigation. An important consideration is whether the mine has a record of

accidents similar to the one under investigation. If so, it is important to determine whether preventive measures were determined and followed. Abrupt changes in mine compliance apparent from the records will be referred to the local District Manager for investigation to determine the reasons.

2. Examination Books. Examination books or other appropriate records should be sought out early during the investigation. In some instances, they may have been collected during the recovery operations. The books should be identified by the team, promptly copied, and returned to the mine operator. Under receipt and proper chain of custody, MSHA may keep the original records and return copies to the mine operator if the records are needed to support a citation.
3. Operator Accident Reports. A copy of the operator's accident investigation report, as required by 30 CFR 50.11(b), should be requested from the operator. This report should be entered in the accident investigation file.
4. Training Records. The investigation team should determine from MSHA Form 5000-23, or by interview, whether the victim(s) had received training or instructions related to the task being performed at the time of the accident. If training was received, find out the time given, the name of the instructor, and the training method used. Based on evidence gathered during the accident investigation, a determination should be made on whether or not the training was conducted according to the approved training plan. Also, based on this evidence, conclusions may be reached as to whether the training covered appropriate topics.

Company records should be used to determine other training programs completed in addition to the training data already recorded. Examples of this training are welder training, supervisory training, maintenance training, etc.

5. Rescue and Recovery Logs. If the accident resulted in the recovery of the accident site by mine rescue teams, a copy of the log should be obtained to document any changes made in the mine environment during the recovery.

H. Witness Statements. Witness statements are an essential part of accident investigations. Because recollections can become confused and physical conditions at the accident site can change over time, all persons with information relevant to the accident should be interviewed as soon as reasonably possible. MSHA's normal practice is to conduct interviews after the accident scene has been carefully examined. However, if the recovery or examination of the accident scene is extensively delayed by hazardous mine conditions or will otherwise be prolonged, consideration should be given to interviewing witnesses prior to the completion of the examination of the accident scene.

State agencies will often conduct their own investigation of the accident. MSHA will coordinate its accident investigation activities with the authorized representatives of the state agency, recognizing the authority and responsibility of the state agency. However, MSHA will conduct its investigation independent of the state agency if a conflict of purpose arises between MSHA and the state.

1. Immediate Response Contact. Prior to conducting interviews, investigators should solicit information immediately through informal discussions with individuals who may have pertinent knowledge. These discussions should be conducted informally and personally by an MSHA investigator and should focus on the specific circumstances of the accident. The investigator should reduce the results of these informal discussions to writing and place them in the administrative file.

These informal discussions should be used to identify those witnesses who will be questioned. If a person should refuse to be questioned,

information gathered from informal discussions with that person should still be considered.

Investigators should visit and informally interview anyone hospitalized as a result of the accident as soon as medical authorities permit it.

2. Interviews. Each witness is to be interviewed separately. Witness interviews are completely voluntary, and a witness may refuse to answer any question or may terminate the interview at any time. Each witness should be advised, prior to commencement of questioning, that he or she has a right to have a personal representative of their choice present during the interview. Each witness should also be advised that he or she may request the opportunity to make a confidential statement, which MSHA will withhold from public disclosure to the extent allowed by law. Each witness should also be told that a record of the interview will be made, and that the record will be made available to the public at the conclusion of the investigation (except where confidentiality is requested).

Normally, MSHA and the state agency (if any) will jointly conduct the interviews.

The mine operator and the representative of miners (if any) will be invited to participate. Each party will generally be allowed one representative to attend the interviews. In special cases where technical assistance is needed, MSHA may allow a greater number of representatives to attend. The number of persons in attendance shall be limited to the minimum needed to conduct an effective interview.

During the course of the interview, the mine operator and the miners' representatives will be permitted to ask questions to follow up on questions by MSHA and the state agency, to expand upon information, or to clarify points made by the witness. If the mine operator or miners' representatives believe that new areas of questioning should be explored, they must submit

the proposed questions to MSHA investigators, who will then decide whether to pursue that area of questioning during this interview.

The MSHA team leader has the authority to limit attendance at the interviews to include only MSHA and state agency representatives in unusual circumstances. Factors that the investigator should consider in determining whether to limit attendance in this manner include:

- a. request by the witness for a private interview;
- b. public statements or disclosures from participants that may compromise the integrity of the investigation;
- c. behavior during interviews that could interfere with the effectiveness of the interview process;
- d. indications of disruptive conduct as evidenced during the physical inspection of the mine; or
- e. other factors which may create an atmosphere not conducive to MSHA's carrying out its investigatory responsibilities.

Any one or more of the above factors can result in MSHA's determination that interview attendance will be limited to MSHA and the state. Each witness will always be allowed to be accompanied by a personal representative of his or her choosing.

3. Location of the Interviews. To the extent feasible, interviews should be conducted in a neutral, informal environment, with comfortable seating and lighting, to put witnesses at ease as much as possible. An ideal location would be a neutral room with arm chairs where the participants could be comfortably seated. The superintendent's office or locations such as a

courtroom or attorney's office are not ideal, as they may create an atmosphere that would inhibit the witness. Off-mine sites should be considered in the location selection.

4. Introductory Statement of MSHA Investigators. All witnesses will normally be assembled at the interview site immediately prior to commencement of the interview phase of the investigation. However, individual witnesses may be scheduled to be available throughout the interviews. The following statement should be read to the group or to each witness individually as he or she is interviewed. If a court reporter is not used, the witness may be advised of the points to be covered.

My name is \_\_\_\_\_. I am a [position title] with the Mine Safety and Health Administration, an Agency of the United States Department of Labor. [Introduce other MSHA representatives and any other individuals who are present].

I have been assigned to conduct an investigation into the accident that occurred at [mine operator's name and mine name] on [date of accident] in which [brief description of accident, including number of miners involved and resulting deaths or serious injuries].

The investigation is being conducted by MSHA to gather information to determine the cause of the accident, and these interviews are an important part of the investigation. At this time the accident investigation team intends to interview [brief description of number of witnesses and general areas of testimony sought].

After the investigation is completed, MSHA will issue a written report detailing the nature and causes of the accident. MSHA accident reports are made available to the public in the hope that greater awareness about the causes of accidents can reduce their occurrence in the future. Information obtained through witness interviews is

frequently included in these reports. Your statement may also be used in other enforcement proceedings.

I would like to thank all interview participants in advance for your appearance here. We appreciate your assistance in this investigation. The willingness of miners and mine operators to work with us is critical to our success in making the nation's mines safer.  
[Provide opportunity for state representative to make an introductory statement].

After reading the statement, all witnesses except the one to be interviewed first should be excused from the interview site.

5. Introduction to Individual Interviews. A statement similar to the following should be read into the record at the beginning of each individual interview. If a court reporter is not used, the witness may be advised of the points to be covered:

This interview with [name of person interviewed] is being conducted under Section 103(a) of the Federal Mine Safety and Health Act of 1977 as part of an investigation by the Mine Safety and Health Administration into the conditions, events, and circumstances surrounding the fatality(ies) that occurred at [mine operator's name, name and location of mine, and date of accident]. This interview is being conducted at [location, date, and time of the interview]. The following individuals are present at the interview: [names and titles of MSHA employees and all parties participating in the interviews].

[Name of person interviewed], the interview will begin by asking you a series of questions. Feel free at any time to clarify any statements that you make in response to the questions. After we have finished asking questions, you will also have an opportunity to make a statement of your own and provide us with any other information that you believe may be important. If at any time after

the interview you recall any additional information that you believe may be useful in the investigation, please contact [provide name, telephone number of alternate contact person].

You are permitted to have a representative with you during this interview and you may consult with your representative at any time. You may designate any person to be your representative.

Your statement is completely voluntary. You may refuse to answer any question and you may terminate (end) your interview at any time. If you do not understand a question, tell me and I will rephrase the question. If you need a break for any reason, please let me know.

You may request the opportunity to make a confidential statement, which we will withhold from the public to the extent allowed by law. Should you desire to give a confidential statement, you should advise me before I begin your interview so that I can reschedule your interview in order to properly consider your request. [This depends upon who is in the interview and whether the witness wants only MSHA present].

A court reporter will record your interview and will later produce a written transcript of the interview. [This statement applies when a court reporter is used].

If any part of your statement is based not on your own first-hand knowledge but on information that you learned from someone else, please let us know. Please answer each question as fully as you can, including any information you have learned from someone else. We may not ask the right questions to learn the information you have, so do not feel limited by the precise question asked. If you have information about the subject area of a question, please provide us with that information.

Do you have any questions regarding the manner in which this interview will be conducted?



[To the Court Reporter "or State Official" if applicable] Will you please swear [name of person interviewed].

Please state your full name, address, and telephone number, and please spell your last name for the record.

Are you appearing voluntarily at this interview? Has anyone made any promises to you for giving the statement or offered you any rewards in exchange for making your statement? [If so, who?] Has anyone threatened you or warned you not to provide this statement? [If so, who?]

Do you understand that you may refuse to answer any question or terminate this interview at any time?

Do you have a representative with you? [If so,] Please identify the representative. [If not,] Do you wish to have a representative with you?

6. Scope of Questioning. An important consideration during the interview process is to treat the witness with courtesy and respect. Interviews will be more productive if the line of questioning for each witness is planned ahead of time. Each witness will have a different perspective on the accident; some individuals will have a very specific and limited perspective.

Questions should be phrased very carefully when sensitive areas of inquiry are being explored. Accidents are traumatic events for those involved. For example, many of the witnesses were coworkers and close friends of the accident victim(s).

New information may often come to light during interviews, and entirely new areas of inquiry may need to be addressed. Advance preparation does not mean that adjustments cannot be made in the line of questioning or that witnesses may not be recalled for supplemental questioning. Where appropriate, a witness may be taken back to the

accident site so that details of the accident can be more thoroughly addressed during the interview.

7. Concluding Statement of MSHA Investigators. At the conclusion of each interview, a statement similar to the following should be made:

On behalf of MSHA, I would like to thank you for appearing and answering questions. Your cooperation is very important to us as we work to determine the cause of the accident.

If you wish, you may now go back over any answer that you have given during this interview and you may also make a closing statement covering any additional points you believe should be raised. [Pause to give person opportunity to think].

We ask that you not discuss your interview today with any person who may have already been interviewed or who may be asked to give a statement in the future. This will ensure that we obtain everyone's independent memory of the events surrounding the accident.

After questioning other witnesses, we may wish to ask you further questions, and we will call you back if necessary. If at some later point you have additional information regarding the accident that you would like to provide to us, please contact [name of appropriate investigator assigned to accident investigation team] at the telephone number given to you prior to this interview.

The Mine Act provides certain protection for individuals who participate in accident investigations. If at any time you believe that you have been treated unfairly because of your cooperation in this investigation, please immediately contact [name of appropriate investigator assigned to accident investigation team]. Thank you again for your help.

- I. Creating a Permanent Record of the Interview. When a stenographic reporter is used to record witness interviews during fatal accident investigations, MSHA will pay for one copy of the transcript. The reporter should be informed at the time he or she is engaged that MSHA will photocopy additional copies as needed. In other instances, a record of the interview should be made by clear written notes or tape recording. If written notes are taken, they should not merely summarize the interview but should document with specificity each question asked of the witness and the response.

When interviews are tape recorded, permission of the witness should first be obtained. The decision of whether to allow the use of additional tape recording devices, such as those of the mine operator, shall rest with the team leader. In general, if tape recording devices are used by MSHA or State agencies, the operator would be permitted to utilize his or her own recording system. In all cases, however, MSHA's record of the interview shall be considered the official record.

Copies of witness statements shall be included in the official accident investigation file and shall be made available to the public at the close of the investigation, unless a witness has requested confidentially. The team leader may, in the public interest, release copies of statements prior to the close of the investigation if it will not impede the remainder of the investigation. However, release of confidential statements is not authorized without the express approval of the Office of the Solicitor.

- J. Public Hearings. A public hearing is the questioning of witnesses under oath in a public forum (members of the general public including the media may be in attendance). Witnesses may appear voluntarily but they may also be compelled by subpoena to appear to answer questions and/or to produce records or other documents in their possession. Because of procedural notice requirements, the public hearing questioning is normally done after the on-site investigation is completed or nearly completed. The witness contacts

would be done in the course of the on-site investigation process. Based on all information available, a potential list of witnesses to be called to testify at the public hearing will be developed. The public must be given formal notice of a public hearing, and all persons subpoenaed to appear must receive personal service prior to their scheduled appearance. While the public is free to attend a public hearing, the public is not free to participate in the conduct of the hearing except to the extent permitted by the person chairing the hearing.

1. Determination to Hold Public Hearing. A public hearing will not be held after every fatal accident, nor necessarily after every major accident. The criteria below are designed to identify those accidents which selectively may pose a situation where a public questioning forum would aid the accident investigation or would provide additional information and insights not available through other means of inquiry. Public hearings may only be scheduled with the concurrence and approval of the Administrator in consultation with the Associate Solicitor of the Division of Mine Safety and Health.

Accident investigations which should be evaluated for feasibility and possible benefit of public hearing are:

- a. Accident investigations of sufficient complexity, magnitude, or nature as to warrant appointment of a special accident investigation team by the Administrator with national office staff direct participation.
- b. Accidents that involve MSHA regulations which have been subject to controversy and/or substantial opposition prior to or upon publication, or standards which have been substantially affected by policy applications which are seen as controversial.
- c. Accidents involving technology that may not be completely understood by MSHA or the general mining community and where

additional research or guidance may need to be developed.

- d. Accidents of a recurring nature where the causes have been difficult to ascertain.
- e. Accidents where multiple management entities are involved, or where several entities represent portions of the labor force at a mine. These could be multiple independent contractors along with the mine operator, or multiple labor representation. The number of entities vying for position in the interview process and the scope of their involvement may complicate the normal interview process, and that fact alone may be reason to invoke the public hearing authority of the agency.
- f. Where records and documents are needed to assist the accident investigation but will not be produced unless a subpoena is issued.

The accident investigation team, with the concurrence of the Administrator, or the Administrator alone, may decide to hold a public hearing after seeking advice SOL and consulting with the Assistant Secretary. Any person may request that a public hearing be held. The justification for a public hearing will be reviewed by the Administrator before a determination is made. The Administrator shall designate in writing the person authorized to chair the public hearing and authorized to issue subpoenas and otherwise carry out the Secretary's authority and responsibilities under §103(b) of the Mine Act.

When MSHA determines that a public hearing is necessary, it shall be convened at an appropriate time and place. Unless exigent circumstances exist, the date, time, and place of the public hearing shall be published by notice in the Federal Register. Prior to the hearing, the operator of the mine, the representative of miners, the responsible state agency, and such

other persons as MSHA deems appropriate, shall be notified in writing of the time and place of the public hearing. All persons being summoned to appear at the public hearing must be served at least 5 days prior to their appearance date unless exigent circumstances exist, or the person being summoned agrees to appear. Any person served with a subpoena to appear may file a motion to quash the subpoena prior to their appearance; however, unless specifically authorized not to appear, any person subpoenaed must physically appear at the scheduled time.

The hearing and its procedural rules shall be under the general direction of the appropriate Administrator, in consultation with the Associate Solicitor for Mine Safety and Health. Parties seeking to appeal rulings of the hearing chairperson may file them with the appropriate Administrator. The determination of the Administrator on any issue pertaining to the conduct of the public hearing shall be final for the Agency.

2. Conducting a Public Hearing. The following general rules shall apply:
  - a. All witnesses, whether subpoenaed or appearing voluntarily, shall be sworn and advised of their legal rights with regard to the giving of testimony.
  - b. All persons having information relevant to the investigation, as established by preliminary questioning, shall be given an opportunity to testify.
  - c. A transcript of the hearing shall be made by a court reporter and shall be made available to the public.
  - d. The hearing shall be open to the public. No tape recorders, television cameras, or other photographic equipment shall be permitted in the hearing room without the approval of the appropriate Administrator.

- e. Members of the public may attend the public hearing but may not participate in the questioning process except as permitted by the MSHA Chairperson.
  - f. The public hearing will be conducted by MSHA. The state agency with authority for mine accident investigations will be invited to attend with a representative who may ask questions of a witness.
  - g. When circumstances warrant, further procedural rules applicable to the hearing may be established prior to or during the hearing.
- K. Report of Autopsy or Death Certificate. Where fatalities are involved, and as soon as it is available, investigators must obtain a copy of the report of autopsy, if one was performed, and a copy of the death certificate. These documents should be reviewed before the formal report is finalized in order to ensure that the findings and conclusions of the accident investigators are consistent with the official cause of death.

However, Districts should not delay finalizing a fatal accident investigation report due to problems in obtaining the death certificate or report of autopsy. In most circumstances, the investigation report should be completed and issued and the documents reviewed when they arrive.

The appropriate Accident Investigation Program Manager should be notified by the District Manager of the existence of any inconsistencies as soon as they are apparent.

In all instances where the cause of death noted in the autopsy report and/or death certificate is inconsistent with the findings of the accident investigators, the inconsistencies must be reconciled or explained in the report of accident investigation.

- L. Information From Other Sources. MSHA will accept, from any source, information relevant to accidents investigated by the Agency. MSHA will accept such information either publicly or by confidential arrangements. The team leader shall afford any interested party the opportunity to present relevant information. Information obtained by others will be considered on its merits but, as an independent investigating authority, MSHA must make its own evaluation of the merit and meaning of such information.

## VII. Procedures for the Collection of Evidence

Accident sites shall be measured, sketched, video taped (conditions permitting), and photographed in as close to the original condition as possible. If the site has been disturbed, the manner in which it has been disturbed, including by whom, when, and why, must be noted. Whenever any item(s) is removed from an accident scene, an MSHA accident investigation team member must be present.

One member of the investigation team must be assigned the responsibility of collecting, marking, and maintaining the chain of custody of physical and documentary evidence obtained during the investigation. Collection of physical evidence (such as equipment, timbers, roof bolts, pre-shift books, etc.) should be taken according to the following guidelines:

- (1) Each item must be permanently marked with a unique identifier that includes the initials of the investigator.
- (2) An evidence card should be completed with the identifier, the date, time, and place of collection.
- (3) A receipt shall be given to the mine operator for each item taken.
- (4) After removal from the site, the evidence shall be secured in an MSHA office and shall not be removed except for official purposes related to the investigation.



- (5) Records shall be kept of the date, time, and purpose of each removal as well as the name of the person who removed it.
- (6) Should the mine operator refuse to release any items or evidence, the matter should be referred to the District Manager for referral to the Accident Investigation Program Manager. (Some states may have additional remedies available; therefore, cooperation between MSHA and State officials in the above matters is imperative.) If an issue concerning destructive testing arises, Technical Support and SOL should be consulted.

The authority of MSHA to investigate accidents and to remove evidence extends only to mines as defined in §3(h) of the Mine Act. Any question as to whether a given location can be examined and/or evidence removed shall be referred through the District Manager to the Accident Investigation Program Manager. The Accident Investigation Program Manager will consult with the Administrator and the Associate Solicitor for Mine Safety and Health to resolve the matter appropriately.

A master log of all items collected shall be maintained as part of the accident investigation file. The file and all evidence collected shall be secured and stored under lock and key under the direct control of the investigation team leader. Where returnable items such as equipment are collected during the investigation, a chain of custody must be maintained from the time the evidence is collected until the Administrator authorizes the return of the evidence to the operator. A chain of custody log must also be maintained for any mine records collected as a part of the investigation.

#### **VIII. Close-out Conference**

At the conclusion of the on-site examination portion of the accident investigation, a close-out conference shall be held with both management and labor to discuss future investigative procedures and, if appropriate, the preliminary findings and preliminary conclusions of the investigation.

**IX. Personal Contacts and Visits to Surviving Family Members**

- A. Initial Contact. As soon as possible following a fatal accident, surviving family members should be contacted by an MSHA management official. All contacts, including personal visits, should be scheduled at a respectable time interval after the accident, with special consideration afforded to family religious or local customs and practices. In particular, at no time should initial contacts be scheduled so as to interfere with funeral arrangements.

The initial contact made by an MSHA management official should be as brief as possible, but express the sympathy of all MSHA personnel, as well as that of the mining community for the family's loss. The initial contact should also include the offer of a personal visit if the contact is being made by telephone. Whether in person or by telephone, the name, address, and telephone number of the contacting official should always be provided, should family members wish to further consult with MSHA, or to provide information or comment during the course of the investigation. Also, insofar as proprieties permit, the contacting official should discuss MSHA's role, normal procedures, and the status of the investigation.

In the event that a personal visit is requested, the MSHA management official should provide reasonable accommodation to family members, including the date, time, and location of such visit. Non-management investigation team members may accompany the management official; however, it is not necessary that the entire investigation team participate. One or two members will suffice. The MSHA management official will take the lead in discussing the accident with the family.

Topics which should be included in the discussion with family members are the status of the investigation and the factual events surrounding the accident. The family members should also be provided an opportunity to comment and to ask questions. In no event should any conclusions be expressed at this point of the investigation.

Following all initial contacts, the appropriate Administrator's office should be informed by telephone and by a memorandum or e-mail of the date on which the visit was conducted and any points of comment that should be noted by the Administrator.

- B. Interim Contacts. During any contact with family members, particularly in the interim period before release of the final report, the management official should listen carefully and closely to the comments, concerns, and questions raised. Issues raised during this period are frequently those of most concern to the surviving family members and will require resolution, if possible, during the final family contact, at which time the finished report will be provided and thoroughly discussed.

Although it is not necessary to notify Headquarters in regard to these contacts, the management official should log or otherwise track these contacts in the event reference to them becomes necessary.

- C. Report Release Visit. In the case of fatal accidents, it is MSHA policy to attempt to provide the victim's family with a copy of the final report of investigation. A personal visit with the family should be scheduled to provide them with a copy of the report and to review with them the findings and conclusions contained therein prior to distributing the report to others. This visit will also be conducted by an MSHA management official. When scheduling these visits, the MSHA management official should again make every effort to accommodate family members' preferences as to the location, date, and time of the visit.

During this visit, attending family members should each be provided a copy of the completed report, accompanied by copies of any contributory enforcement actions. In some instances, the management official may not have participated in the investigation and may not be fully familiar with all its aspects. In this case, a member of the investigation team, preferably the team leader, should also be present for any needed consultation or assistance.

The contents of the report should be thoroughly discussed with those in attendance, particularly with regard to MSHA's findings and conclusions. Family members should each be provided an opportunity to comment and to ask questions. Any significant issues or points of comment raised should be responded to, if possible or appropriate, and duly noted.

Within 5 working days following the final contact or visit, a memorandum shall be prepared for the appropriate Administrator and routed through the appropriate District Manager. This memorandum should contain the location and date of the visit, a listing of those in attendance, and a synopsis of any significant issues or points of comment raised by surviving family members.

In the event that surviving family members decline the offer of a personal visit and prefer to review the report privately, a copy(s) shall be forwarded to their specified address by certified mail, return receipt requested. This is a courtesy extended by MSHA. Public release of the report should be delayed until receipt and review by family members.

D. Contacts Involving Representatives of Families.

It should be remembered that all personal contacts initiated by MSHA are extended as a courtesy to surviving family members and are not intended to be adversarial or biased in nature. These contacts are rather designed to involve family members in the process of the investigation and to serve as an additional resource to the family.

Due to the fact that the extension of this courtesy and resource is personal and only intended for surviving family members, non-family participation and involvement is not encouraged except in unusual circumstances.

In the event that any contact is made or scheduled that involves parties other than family members, the District Manager shall contact the appropriate Accident Investigation Program Manager for guidance before continuing such contact.

## Chapter 4 - Reporting and Report Writing

### I. Purpose

This Chapter has been developed to provide guidance in the compilation of factual information regarding the findings of investigations of accidents involving health and safety in mines and the dissemination of this information. The procedures and format to be used for the findings of investigations of occupational illnesses are distinctly different and are addressed in Chapter 5.

### II. Preliminary Report of Accident

- A. Reporting. The District will provide the Preliminary Report of Accident (MSHA Form 7000-13 revised) as soon as possible but not later than 48 hours after the initial notification of the accident. This data is to be submitted via telecopier at (703) 235-1517 for CMS&H and at (703) 235-9173 for M/NM; or telephoned to the Management Office at (703) 235-1550 for CMS&H or (703) 235-8480 for M/NM. Using the Preliminary Form module of the Accident Investigation Data Base is an alternative means of reporting; however, a phone call to the appropriate Headquarters office will be required to announce that the information is available.

When gathering preliminary information relative to the investigation, any equipment involved in the accident must be identified. The manufacturer and model of the equipment is to be included on MSHA Form 7000-13.

- B. Instructions for Completion of the Preliminary Report of Accident. The report should be completed as indicated below. If not specifically mentioned, the items are self-explanatory. See Subsection C of this chapter for more details.

1. Accident Type: Mark if fatal, nonfatal, non-injury, or unknown. An example of an unknown accident type would be a death on mine property, the cause of which may be natural or which has not yet been determined.

2. Accident Classification: Enter the appropriate classification as entrapment, inundation, gas or dust ignition, mine fire, explosives, roof fall, electrical, haulage, machinery, outburst, impounding dam, hoisting, or off-site injury.
3. Fatal Case Number: **Completed at Headquarters.**  
The Management Office will record the fatal case number.
6.
  - a. Mining Company Name: Enter name of company operating the mine.
  - b. Mine Name: Enter the name of the mine.
  - c. Parent of Mining Company: Enter name of company if not the same as the operator.
7. Mine Location: Enter the town, county, and state where the mine is located.
10. Primary Mineral Mined: Enter coal, potash, sand and gravel, anthracite, lignite, etc.
13. Union: Enter name of union with which contractor is affiliated.
14. Contractor ID Number: If a contractor employee was injured in the accident, enter the Contractor ID Number.
15. Contractor Address: Enter city, county, and state of contractor. Address should include mailing address, not just the city and state.
16. Number of Contractor Employees: At the mine site.
23. Victim Information: e. State the activity of the victim at the time of the accident.
24. Experience: d. State experience with contractor.
26. Next of Kin: Enter the **relationship** of next of kin, such as spouse, father, mother, son, daughter, etc. Do not enter a name in this space. Enter the total number of dependents, including children and relatives, living in the same household.

**Note:** In order to protect their privacy, the names, addresses, and phone numbers of next of kin shall be submitted to Headquarters on a separate sheet of paper.

27. a. Notifying Mine Person: Enter name of person who reported accident to MSHA.
- b. Telephone Number: Enter phone number of person who reported accident to MSHA.
28. Description of Accident: Enter brief summary of how and why the accident occurred; i.e., ignition occurred during mining, cutting, welding, smoking material, etc. When it is appropriate, specify the model and serial number of equipment involved.
29. Equipment Manufacturer: Enter name of manufacturer of equipment involved in the accident.
30. Model: Enter model number of equipment, i.e., 21SC shuttle car, model of roof bolter, etc.
33. Field Office: Enter the MSHA field office that has responsibility for inspecting the mine at which the accident occurred.
34. Event Number: The event number that will be used for tracking purposes.
35. Accident Investigator: Person in charge of conducting the investigation.
36. a. MSHA Person Notified: Person who received initial report of the accident.
37. a. Initial Report: Enter date accident was initially reported to MSHA.
38. a. Signature: Signature of MSHA Official completing the form.

C. Classification of Mine Accidents.

The following procedure will be used when classifying accidents. Remember that it is the accident you are classifying. The accident classification identifies the circumstances which contributed most directly to the resulting accident. The accident may or may not be directly tied to any resulting injury. For that reason, you must not associate the classification decision with any injury that may have resulted. Keep the concepts of accident and injury clear and distinct in your mind as separate things.

The classifications are listed in alphabetical order:

**ELECTRICAL** - Accidents in which electric current is most directly responsible for the resulting accident.

**ENTRAPMENT** - In accidents involving no injuries or nonfatal injuries which are not serious, entrapment of mine workers takes precedence over roof falls, explosives accidents, inundations, etc. If a roof fall results in an entrapment accident, the accident classification is "Entrapment."

**EXPLODING VESSELS UNDER PRESSURE** - These are accidents caused by explosion of air hoses, air tanks, hydraulic lines, hydraulic hoses, and other accidents precipitated by exploding vessels.

**EXPLOSIVES AND BREAKING AGENTS** - Accidents involving the detonation of manufactured explosives, Airdox, or Cardox, that can cause flying debris, concussive forces, or fumes.

**FALLING, ROLLING, OR SLIDING ROCK OR MATERIAL OF ANY KIND** -Injuries caused directly by falling material require great care in classification. Remember that it is the accident we want to classify. If material was set in motion by machinery, haulage equipment, or hand tools, or while material is being handled or disturbed, etc., charge the force that set the material in motion. For example, where a rock was pushed over a highwall by a dozer and the rock hit another rock which struck and injured a worker - charge the accident to the dozer. Charge the accident to that which most directly caused



the resulting accident. Without the dozer, there would have been no resulting accident. This includes accidents caused by improper blocking of equipment under repair or inspection.

**FALL OF FACE, RIB, SIDE OR HIGHWALL** - Accidents in this classification include falls of material (from in-place) while barring down or placing props; also pressure bumps and bursts. Since pressure bumps and bursts which cause accidents are infrequent, they are not given a separate category. Not included are accidents in which the motion of machinery or haulage equipment caused the fall either directly or by knocking out support; such accidents are classified as machinery or haulage, whichever is appropriate.

**FALL OF ROOF OR BACK** - Underground accidents which include falls while barring down or placing props; also pressure bumps and bursts. Not included are accidents in which the motion of machinery or haulage equipment caused the fall either directly or by knocking out support; such falls are classified as machinery or haulage, whichever is appropriate.

**FIRE** - An unplanned mine fire not extinguished within 30 minutes of discovery. Fires of shorter duration may be responsible for reportable injuries. In those cases, the fire would still be the cause of the accident. Not included are fires initiated by electricity or by explosion of gas or dust.

**HANDLING MATERIAL** - (Lifting, pulling, pushing, shoveling material.) The material may be in bags or boxes, or loose sand, coal, rock, timber, etc. The accident must have been most directly caused by handling material.

**HAND TOOLS** - Accidents related to non-powered tools when being used as hand tools. Do not include electric tools or air-powered tools.

**NON-POWERED HAULAGE** - Accidents related to motion of non-powered haulage equipment. Included are accidents involving wheelbarrows, manually pushed mine cars and trucks, etc.

**POWERED HAULAGE** - Haulage includes motors and rail cars, conveyors, belt feeders, longwall conveyors, bucket elevators, vertical manlifts, self-loading scrapers or pans, shuttle cars, haulage trucks, front-end loaders, load-haul-dumps, forklifts, cherry pickers, mobile cranes if traveling with a load, etc. The accident is caused by the motion of the haulage unit. Include accidents that are caused by an energized or moving unit or failure of component parts. If a car dropper suffers an injury as a result of falling from a moving car, charge the accident to haulage.

**HOISTING** - Damage to hoisting equipment in a shaft or slope which endangers an individual or interferes with use of the equipment for more than 30 minutes. Hoisting may also be the classification where a victim was injured by hoisting equipment but there was no damage to the equipment. Accidents involving cages, skips, buckets, or elevators. The accident results from the action, motion, or failure of the hoisting equipment or mechanism. Included is equipment such as derricks and cranes only when used in shaft sinking; suspended work platforms in shafts; mine cars being lowered or raised by hoisting equipment on slopes or inclines; a skip squeezed between timbers resulting in an accident; or an ore bucket tipped for any reason causing an accident.

**IGNITION OR EXPLOSION OF GAS OR DUST** - Accidents resulting as a consequence of the ignition or explosion of gas or dust. Included are exploding gasoline vapors, space heaters, or furnaces.

Methane Ignition - A methane ignition occurs when methane burns without producing destructive forces. Damage resulting from an ignition is limited to that caused by flame and heat. Personnel in the immediate vicinity of an ignition may be burned and line brattice or other materials in close proximity may be discolored, melted or burned. Ignitions generally involve small quantities of methane and are usually confined to a small area; however, in the case of methane roof layering, flame spread may be more extensive.

Methane Explosion - A methane explosion occurs when methane is ignited and burns violently. The flame of the explosion accelerates rapidly, heating the environment and causing destructive forces. Evidence of the destructive forces may be manifest on victims, equipment, structures, etc. Witnesses to an explosion may hear the noise generated by the resulting sound pressure wave.

**IMPOUNDMENT** - An unstable condition at an impoundment, refuse pile, or culm bank which requires emergency action in order to prevent failure, or which causes individuals to evacuate an area. Also the failure of an impoundment, refuse pile, or culm bank.

**INUNDATION** - An unplanned inundation of a mine by a liquid or gas. The mine may be either a surface or underground operation.

**MACHINERY** - Accidents that result from the action or motion of machinery or from failure of component parts. Included are all electric and air-powered tools and mining machinery such as drills, tuggers, slushers, draglines, power shovels, loading machines, compressors, etc. Include derricks and cranes except when they are used in shaft sinking (see HOISTING) or mobile cranes traveling with a load (see POWERED HAULAGE).

**SLIP OR FALL OF PERSON** - Includes slips or falls from an elevated position or at the same level while getting on or off machinery or haulage equipment that is not moving. Also includes slips or falls while servicing or repairing equipment or machinery. Includes stepping in a hole.

**STEPPING OR KNEELING ON OBJECT** - Accidents are classified in this category only where the object stepped or kneeled on contributed most directly to the accident.

**STRIKING OR BUMPING** - This classification is restricted to those accidents in which an individual, while moving about, strikes or bumps an object but is not handling material, using hand tools, or operating equipment.

**OTHER** - Accidents not elsewhere classified. This is a last resort category.

### III. Fatalgrams

The Fatalgram program was established as a means to prevent mining accidents by providing important and practical fatal accident information to the mining community as soon as possible.

The following procedures should be followed to ensure the timely development and distribution of Fatalgrams.

1. As soon as possible, but usually following the on-site and interview segments of a fatal accident investigation (typically within 5 days), the district accident investigation team will develop an *enhanced* narrative description of the fatal accident. This description should briefly outline the story of the accident along with the key factors that contributed to its occurrence. The narrative will be accompanied by a selection of photographs or a drawing of the accident area and mailed (electronic mail (e-mail) is encouraged), to the appropriate Accident Investigation Program Office in Arlington. In addition 'bullet' style statements, or "Best Practices," will be included with the narrative. The "Best Practices" statements will identify ways to prevent a future fatal accident of a similar nature.
2. The Accident Investigation Program Office will further the development of the Fatalgram and select an appropriate photograph or drawing. The final narrative and illustration will be given to the Management Office.
3. Distribution will be to the appropriate district managers, national industry organizations, and state agencies. The expectation is that the above entities will expeditiously distribute Fatalgrams among their organizations. Distribution will also include MSHA's home page (<http://www.msha.gov>) on the Internet.

Note: Special instructions apply when using e-mail. E-mail messages, with "Alert Bulletin" files attached, should be sent to the Accident Investigation Program

Manager with copies to the manager's support staff. The narrative and photographs (or drawings) *must be separate files* - a text file and picture or drawing files. WordPerfect documents with picture files imbedded (.WPG files) have consistently proved troublesome and are not desirable. The text files can be in any format. Scanned photographs or drawings, as well as photographs taken with a digital camera, should be sent as either .PCX, .GIF, or .JPG files. Drawings created using a CAD program should be sent as a .DXF file saved using the AutoCAD format. There are other file formats that may also be acceptable for conversion to standard file formats for use on the Internet.

#### IV. Formal Report

- A. Preparation of Report. A formal report is required in all investigations involving fatal accidents and in other non-fatal or non-injury investigations, as determined by the District Manager.

Promptly after the on-site investigation, witness interviews, and technical tests are completed, a report shall be written under the direction of the District Manager or the Accident Investigation Program Manager, whichever is appropriate.

Final reports shall be prepared and submitted in the following manner:

1. The report shall be submitted by overnight mail, e-mail, or telecopier to the Accident Investigation Program Manager for approval within 45 days following the start of the investigation.

When a fatality is involved, a copy of the report shall also be sent by overnight mail to the Headquarters Office of Assessments.

2. The report shall include maps, photographs, and other illustrations necessary to present a complete story of the matter investigated. The original maps and/or illustrations shall be prepared in a manner that will allow copies to be made.

- a. Important and necessary data referred to in the report shall be shown on the maps, photographs, and other illustrations to permit a clear understanding of the subject under discussion.
  - b. If copies of the maps and illustrations cannot be prepared in the office responsible for conducting the investigation, they may be requisitioned through an MSHA office having the necessary facilities.
3. All accident reports must be reviewed in draft form by the Accident Investigation Program Manager. Any concerns raised by the Program Manager must be addressed by the District Manager prior to the report being made final. Copies of all citations and orders, both contributory and noncontributory, as deemed appropriate by the team leader, and a set of completed Accident Investigation Data Forms, MSHA Form 7000-50 series, shall accompany the draft report.
4. The National Mine Health and Safety Academy, Support Services Branch, can be utilized for printing and distribution. An original report, a distribution list for the district in which the accident occurred, and a printing request should be submitted.

In addition to the specified format of formal reports, distinctively colored covers shall be incorporated and utilized uniformly in their distribution. The color of the report cover shall correspond to the type of accident as follows:

RED	-	FATAL
YELLOW	-	INJURY
BLUE	-	NON-INJURY

5. In the event that the investigation of an accident is prolonged, an interim report shall be prepared when requested by the Administrator. The method and procedure for submittal of the interim report shall be as directed by the Accident Investigation Program Manager. However, with the exception of

those facts and issues which are unresolved at the time of the writing, the content and format of the interim report shall be the same as for the final report.

B. Guidelines for the Format of a Formal Accident Investigation Report. The following report format should be used for all fatal accident reports. Sometimes the investigator may be unaware of certain factual material peculiar to a specific investigation fits into this format. No format can be devised to completely avoid these contingencies, and they can be handled without unduly compromising the format or quality of the report.

1. Cover Page. A cover page of appropriate color, as previously addressed, and as illustrated on the following page, shall cover each report. A non-colored title page shall follow the cover page containing the same information as the cover page for photocopying purposes; and an appropriate sketch or photograph of the accident scene, etc., sufficient to clarify the Summary and Conclusions, shall be displayed on the reverse side of the title page. When more than one sketch, photograph, or illustration is needed in a report, the additional sketches, etc., shall appear in the report appendix.

In addition, each cover page of a fatal accident investigation report shall bear a catalog number, positioned in the upper right corner. The purpose of the catalog number is to provide a means whereby libraries and other repositories of fatal accident investigation reports may efficiently catalog and store these for easy retrieval by interested parties.

The catalog number shall indicate the following:

- (a) the organizational origin of the investigation report: CAI for coal or MAI for metal/nonmetal;
- (b) the four-digit year of occurrence; and

- (c) the fatal case number assigned by Headquarters.

Examples are as follows:

A catalog number of MAI-1999-05, would represent a MNM accident report of a fatality at a MNM operation, which occurred in 1999, and which represented the fifth fatality of the year. The report concerning the fifth coal fatality occurring in 2000 would bear a catalog number of CAI-2000-05.

Before assigning the catalog number, the appropriate Accident Investigations Program Office should be consulted.



*(WITH INDEPENDENT CONTRACTOR)*

MAI-1999-21

UNITED STATES  
DEPARTMENT OF LABOR  
MINE SAFETY AND HEALTH ADMINISTRATION  
METAL AND NONMETAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION

Surface Nonmetal Mine  
(Sand and Gravel)

Fatal Machinery Accident  
June 28, 1999

ABC Contracting Company (DE5)  
Anytown, USA

at

ABC Pit and Plant  
ABC Redi Mix, Inc.  
Mining Town, Minerals County, Oregon  
ID No. 51-12345

Accident Investigators

Manny Supervisor  
Supervisory Mine Safety and Health Inspector

Roger Inspector  
Mine Safety and Health Inspector

Fred C. Engineer  
Civil Engineer

Dave D. Engineer, P.E.  
Mechanical Engineer

Originating Office  
Mine Safety and Health Administration  
Western District  
2060 Peabody Road, Suite 610  
Vacaville, CA 95687  
James M. Salois, District Manager

*(WITHOUT INDEPENDENT CONTRACTOR)*

MAI-1999-21

UNITED STATES  
DEPARTMENT OF LABOR  
MINE SAFETY AND HEALTH ADMINISTRATION  
METAL AND NONMETAL MINE SAFETY AND HEALTH

REPORT OF INVESTIGATION

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James M. Salois, District Manager

2. Table of Contents. Formal accident reports should be structured as indicated in the following outline which is also an example of the Table of Contents page:

### Table of Contents

#### OVERVIEW

#### GENERAL INFORMATION

#### DESCRIPTION OF THE ACCIDENT

#### INVESTIGATION OF THE ACCIDENT

#### DISCUSSION

#### CONCLUSION

#### ENFORCEMENT ACTIONS

#### APPENDICES

3. Report Content. A table of contents is required for reports exceeding nine pages. The following is a description of the above sections of a formal report:
  - a. Table of Contents. Typical table with page number referenced for two levels of headings.
  - b. Overview. The information in this section should mirror the information entered into Section B, Items 23 and 24, Description of the Accident and Conclusion, on the Accident Investigation Data Form (MSHA Form 7000-50 series). The purpose of the overview is to provide critical and concise information about the accident, the mine, and the conclusion early in the report.
  - c. General information. This should include mine type, location, ownership, management, relevant involvement of independent contractors, mining method, and any unique factors pertinent to the operation.
  - d. Description of the Accident (Story of the Event). This should be a story of the event that describes

the mine or facility's operation or work procedures beginning at an appropriate time to the extent necessary that the reader can comprehend the events leading up to the accident and understand the total mine environment as it relates to or affects the accident. For example: the roof conditions that have a bearing on the accident can be described; the electrical system, equipment, and voltages can be described to the extent necessary to understand the electrical installation and factors of the accident; or the mine ventilation can be described to the extent that it is involved in the accident. Information not necessary to understand what happened, but needed to understand the cause or contributing factors, can be described in the discussion section. Information that is extraneous to the accident should not be included.

The story should continue with a description of the accident itself.

The mine operator's recovery activities or post accident activities can be covered in this section. Also, any MSHA participation in recovery activities can be woven into the story.

- e. Investigation of the Accident. This section will describe the investigation, stating when it started and ended, along with pertinent activity descriptions as necessary to provide an insight to the investigation.
- f. Discussion. This section contains a discussion of the pertinent factual details or factors bearing on the event. Information learned during the investigation should be documented, discussed and evaluated in paragraph or subsection format. The mining methods, equipment, plans, and work procedures believed to have an impact on or contribution to the accident can be discussed. This section should be used to document MSHA's consideration and determination of the relative importance of the information learned in the investigation.

Information that supports the determined cause of the accident, as well as information considered in determining what did not cause or contribute to the accident, is the basis of this section.

Also include all information that supports any citations and orders issued as contributory violations.

Information from previous sections of the report can be repeated and expanded in the Discussion section. New information learned during any phase of the investigation, not mentioned elsewhere, can also be introduced and discussed here.

Laboratory analyses included in the appendix can be referenced, eliminating the need for discussing the analyses in this section.

This section should address the "who, what, when, where, why, and how" of the accident.

- g. Conclusion. The conclusion should be a fully developed statement of the cause(s) of the accident. This is not always the same as the cause(s) of the injury. Careful consideration is required to avoid the common error of confusing the cause(s) of the injury with the cause(s) of the accident. The conclusion should also distinguish between the **root** and **indirect** cause(s) or contributing factor(s) of the accident.

The conclusion must be fully supported by facts developed elsewhere in the report.

- h. Enforcement Action. This section should contain any enforcement action taken as a part of the accident investigation including actions under §103(k), §107(a), and those citations or orders issued for violations which contributed to the occurrence of the accident. The enforcement actions should be typed verbatim and listed in a subtopical format.
- i. Appendices. The report shall contain the following separate appendices, if applicable:

- 1) **List of Persons Participating in the Investigation** - This listing shall be grouped by company or agency, giving the name and title of each person.
- 2) **List of Persons Interviewed** - This listing should show the names and job titles of those persons interviewed.

**Special Note:** In some circumstances, such as where an interviewee has requested to make a confidential statement outside the scheduled interview location and process, which is unknown to the other interviewees or participants, it may not be appropriate to list his or her name in order to protect both the identity of the witness and the confidentiality of their statement. In these situations, the appropriate Accident Investigations Program Manager should be consulted for guidance.

- 3) **Test Results** - In most cases it will be sufficient to include an Executive Summary prepared by the investigators which states the results of the tests. However, the Executive Summary should provide information as to how interested persons may obtain a copy of the complete report of all tests of equipment made in conjunction with the investigation.
  - 4) **Sketches and/or Photographs** - Additional sketches and/or photographs necessary to clarify the report shall be included.
  - 5) **Charts, Tables, Illustrations, and Maps** - These shall be included when necessary to fulfill the informational requirements of the report.
4. Review of Report. When a fatal accident investigation report is completed, a draft will be forwarded by overnight mail, by e-mail (e-mail is encouraged), or faxed to the appropriate Accident Investigation Program

Manager for review. A complete set of Accident Investigation Data Forms and a copy of any citations and orders issued or anticipated shall accompany the draft report. Following Headquarters review and approval, the report will be finalized, printed, and released.

5. Hand-Delivery of the Report. MSHA policy is to hand-deliver a copy of the final fatal accident report to the victim's family, the mine operator, and appropriate labor organizations prior to its release to any other entity.
  - a. Visit to the Victim(s)'s Family.  
A copy of the report will be hand-delivered to the family of the victim(s) first. More detail on this topic may be found in Chapter 3, Section IX, Subsection C.
  - b. Visit to the mine operator and labor organization.  
A conference should be scheduled with company officials responsible for the mine for hand-delivery of the report following delivery to the victim's family. A meeting with the labor organization should also be arranged. The contents of the report should be briefly explained with discussions on any measures to prevent future similar accidents. These meetings normally will be held separately.
6. General Release of Report and Press Statement. Once copies of the report have been provided to the victim's family, the mine operator, and the labor organization, a general release of the report can be accomplished. In some cases, a press statement will be issued along with the report. The Accident Investigation Program Manager and the Office of Information and Public Affairs (OIPA), with input from the appropriate district manager, should have a press statement developed and approved prior to the release date of the report.

7. Final Reports on the Internet. Following the release of a Fatal Accident Report, an electronic copy (either on diskette or e-mail) shall be sent as soon as possible to the Accident Investigation Program Manager for inclusion on the Internet.

## V. Memorandum Reports

A memorandum report format or a completed set of Accident Investigation Data Base forms is appropriate for most nonfatal accident investigations.

Investigations of other accidents that are **not** in a category that requires immediate notification of Headquarters may be documented using a memorandum report format.

An important consideration in the decision to write a formal report or a memorandum report is whether the information learned in the investigation has a sufficient message to warrant the expenditure of resources necessary to prepare and disseminate a formal report.

A legibly completed set of Accident Investigation Data Forms can be substituted for memorandum reports normally prepared when a formal report is not written.

## VI. Accident Investigation Data Forms

- A. Accident Investigation Database. MSHA's Accident Investigation (AI) Database is designed to provide a central location for the electronic compilation of the findings of MSHA investigations of accidents and other occurrences at a mine. This database also serves as a meaningful source for the dissemination of information. The database is expected to become an important element of the mining community's accident prevention program. The information stored in the database permits research into the causes of accidents, injuries, and illness. Analysis of accident data, using the database, will help determine appropriate accident prevention measures for the mining industry. The database will also facilitate MSHA report writing.

The uniform system of collecting and storing accident data relies on the accurate completion of accident investigation data forms, MSHA 7000-50 series, during



the investigations. The database must contain accurate and factual information. Factual information from investigation reports of mining accidents, or other occurrences written prior to the development of the database will also be introduced into the database.

It is important that investigators are mindful of the information that must be considered during each accident investigation. Use of the AI data form serves three purposes: to guide the investigator to pursue and consider specific areas in the investigation; to help ensure the investigation is complete; and to facilitate the district and national accident investigation information database.

- B. Use of the Accident Investigation Data Forms. An accident investigation data form package must be completed for every accident investigation activity (AFA, AFB, AFC for Coal and Code 30 activities for Metal and Nonmetal). The AI data form set includes a general accident information form, a victim form, an independent contractor form, an ignition/explosion form, a roof fall form, and a continuation form.

Following the completion of the investigation, the appropriate completed forms will be forwarded to the district manager for review and concurrence. Following the district manager's approval, the data will be entered into the AI database at the district office. The original forms will be maintained with the accident investigation administrative file.

In the case of deaths on mine property that are determined to be natural deaths or otherwise not chargeable to the industry, a set of AI data forms is not required and no data should be entered into the database. A preliminary report is required, however, for all deaths on mine property; and data should be entered into the preliminary database.

**SPECIAL NOTE:** As soon as the cause of death has been established by a competent authority, i.e., the State Medical Examiner's Office or County Coroner, the Preliminary Report of Accident should be amended to include that information in Item 1, Accident Type.

- C. Reports. The database is designed to generate a data form report (a set of completed MSHA 7000-50 forms). The data form report may serve as the final report for **non-injury**, roof fall, and ignition accident investigations. Later, a model **draft** formal report outline will be generated by the database as a word processing file (wpd., doc., etc.) using the entered data. Additional detail can then be written into the draft report to develop a completed formal report.
- D. General Information Form (MSHA Form 7000-50a)  
Instructions. The Accident Investigation Data Form 7000-50a is completed for all accidents investigated by MSHA (i.e., Coal Activity Codes AFA, AFB, and AFC; Metal and Nonmetal Activity Code 30).

#### Mine Information

Event Number: This is the event number assigned to the accident investigation.

1. MSHA ID Number: Enter the Mine ID Number from the Legal Identity Form.
2. Mine Name: Enter the mine name from the Legal Identity Form.
3. Operating Company Name: Enter the company name from the Legal Identity Form.
- 4a. Mine Location: Enter the town, county, and state in which the mine is located.
- 4b. Union Affiliation: Record the appropriate name or abbreviation of the union affiliation for the mine. Should multiple unions exist at the mine site, record the union organization that **represents the greatest number of workers** at the site or mine. If the union organization cannot be found in Appendix 4, record **"ONL"** (Other Not Listed), and accurately enter the name of the unlisted organization. If there is no union representation, write **"None."**

5. Mine Type: Reference the mine type listed in Appendix 5. Enter both the applicable mine type code and the description.
6.
  - a) Material Mined or Processed: Reference the Standard Industrial Classification Codes (SIC) in Appendix 6. Enter both the SIC code and the description of the **primary material** mined or processed.
  - b) Part 48 Exempt? (Applies only to metal/nonmetal mining) If this mine is exempt from 30 CFR Part 48 Training, check the "Yes" block; otherwise check the "No" block.

**Note:** Items No. 7, 8, 10, 12, 13, and 14 do not apply to Surface Facilities.

7. Name of Seam: (Applies to Coal Mine Safety and Health only). Enter the name of the coal seam being mined. If the operation is mining multiple seams, **enter the seam in which the accident occurred.** In multiple seam mines where the accident did not occur in one of the seams, enter **"Multiple Seams."**
8. Mining Data (GENERAL):
  - a) Mining Method: Reference the list of mining methods in Appendix 7. Enter both the code and a description of the mining system. If the operation is using more than one mining system, enter the **primary mining system** at the operation. Single and multi-bench mining methods are descriptive terms for open pit mining.
  - b) Extraction Method: Reference the list of extraction methods in Appendix 7. Enter both the code and a description of the extraction method in use at the operation. If the operation is using more than one extraction method, enter the **primary extraction method** at the operation.

- c) Haulage Method: This item refers to the method by which extracted material is transported. Reference the list of haulage types in Appendix 7. Enter both the code and a description of the type of haulage. If the operation is using more than one haulage method, enter the code for primary haulage method in the appropriate block on the form and indicate secondary and third haulage methods in the additional blocks. The methods should be listed in the order they occur starting at the point of extraction (i.e., shuttle car, conveyor belt, track).
- d) Are explosives used in the extraction of material? Check the appropriate block. Check "yes" only if explosives are used as part of the **normal mining cycle**.

9. Employment:

At Time of Accident - Enter the number of **production operator employees** working underground and on the surface **at the time of the accident**.

Average Mine Employment - Enter the **average number** of production operator employees.

**Note:** Do not include independent contractor employees in this number. Independent contractor employees are listed on the supplemental contractor information form.

- 10. Production (coal only): Enter the estimated amount of raw coal, in tons, extracted during a normal **workday**. No production should be listed for Preparation Plants.
- 11. Hours of Operation: **Note:** Overlapping shifts may add up to more than 24 hours.
  - (a) Hours per Shift: Enter the number of hours during a normal work shift.
  - (b) Shifts per Day: Enter the number of shifts worked on a normal workday.

- (c) Days per Week: Enter the average number of days the mine normally operates each week. Do not record a range, i.e., 4 - 6 days.
12. Number of Active MMU'S (UG coal only): Enter the number of active developing and retreating mechanized mining units.
13. Methane Liberation: Enter the cubic feet of methane liberated in the ventilation system in 24 hours. If no methane is liberated, enter "0."
14. Average Mining Height: Enter the average mining height, height between benches, or, if a single seam operation, the highwall height.
15. Management/Labor Officials: Enter the title, name, and address of the operation's principal management and labor officials, including the superintendent, mine foreman, section foreman, and, when applicable, the leading miner representative. The list should include **the highest level of management at the accident site at the time of the accident.**

For labor officials (including miners representative), record the one union representative closest to the accident on the last line of this section.

#### Accident Information

16. Date/Time of Accident: Enter the date (in the form MM/DD/YY) and time (use 24 hour time).
17. Type of Investigation: Mark the appropriate box dependent upon whether the accident resulted in fatal injuries, non-fatal injuries, or no injuries. Mark only one box, indicating the most serious injury associated with the accident. For instance, if an accident results in both fatal and non-fatal injuries, only the fatal box should be checked.

18. Accident Classification: Reference accident classifications in Appendix 8. Enter both the code and a description of the accident classification.
19. Number of Deg. 1 - 5 Injuries: Enter the number of persons incurring fatal and lost-time injuries as a **direct** result of the accident. If the accident resulted in no injuries, enter "0."
20. Location of Accident Injury/Illness: Reference accident locations in Appendix 9. Enter both the code and description of the accident location.  
**Note: This is the location of the event, not necessarily the victim. Do not provide both a surface and underground location.**
21. Number of Independent Contractor Companies Involved in Accident: Where applicable, enter the number of independent contractor **companies** (not employees) involved in the accident. Enter "0" if no contractors were involved.
22. Equipment Involved: This section identifies equipment associated with the accident. If the accident did not involve equipment, leave items 22a. through 22e. blank. If more than one piece of equipment was involved in the accident, code the two most directly involved.
  - a. Type: Reference the list of mining equipment in Appendix 10. Enter both the code and a description of the mining equipment.
  - b. Manufacturer: Reference the list of equipment manufacturers in Appendix 11. Enter both the code and the manufacturer's trade name.
  - c. Model Number: Enter the manufacturer's equipment model number.
  - d. Serial Number: Enter the serial number of the equipment.

- e. Control: Signify whether the equipment is operated with remote or on-board controls. Enter "R" if the equipment was operated using a remote control. Enter "O" if the equipment is not remotely controlled. Enter NA if no mining equipment was involved in the accident.

**Note:** If the equipment is not contained in the list of equipment codes, contact the appropriate Accident Investigation Program Manager's Office.

- 23. Description of the Accident: Describe the findings of fact disclosed during the accident investigation. If necessary, use continuation sheets (MSHA Form 7000-50e), checking or circling the "Continued on Attachment" statement. Where applicable your narrative must include:
  - 1) what happened, including the events leading up to and following the occurrence;
  - 2) damage or impairment to the mining operation and mine equipment relating to the accident;
  - 3) protective devices or clothing;
  - 4) work environment, including the work-site, operations, systems, work procedures, and hazards involved;
  - 5) training of the miners involved; if the evidence indicated that the miner did not understand the task or the hazards related to it, this should be indicated; and
  - 6) instructions given to the victim(s) and other persons directly involved in the accident. The person giving these instructions should also be included.
- 24. Conclusion: The conclusion should be a fully developed statement as to the cause of the accident. This is not the same as the cause of injury. Careful consideration is required to avoid the common error of confusing the cause of

injury with the cause of the accident. The conclusion should differentiate between **conditions** in the mine and **procedures** used to complete a task as causes of the accident. Of particular importance, this section must contain information that supports the citations and orders issued for contributing violations.

The primary or underlying (root) cause of the accident should be identified, with an explanation of the **condition** in the mine or the **procedure** that was the root cause of the accident. All other unsafe conditions and/or procedures which contributed to the accident should be identified and listed as contributing factors.

Examples of conditions are muddy and slippery surface haulage roads; deteriorating roof/ground conditions; faulty brakes on a haulage truck; hoisting rope worn beyond proper tolerances; and improperly maintained equipment.

Unsafe procedures could be procedures of which mine management was aware, the normal practices or procedures used by the miners, or ad hoc procedures used on the spur of the moment by the injured employee. Examples include driving too fast for conditions; not wearing seat belts; not wearing appropriate safety equipment; working inby supported roof; not making required or appropriate examinations; and not following approved plans.

25. Enforcement Actions: For all contributory citations and orders issued in conjunction with the accident investigation, indicate whether the violation was due to **inadequate Procedures**, **Conditions**, or **Training** by checking the appropriate box:

P. Procedure Type - Includes work procedures which create a violation that contributed to the accident. Examples: traveling inby roof supports; failure to lock-out the electrical system; failure to follow approved plans.



- C. Condition Type - Includes physical circumstances that caused violations that contributed to the accident. Examples: poorly maintained equipment; defective tools; adverse ground/roof conditions; and missing guards.
- T. Training Type - Includes violations caused by inadequate training.

Enter the citation number, the part and section of Title 30 CFR cited, or, if 30 CFR is not cited, the Section of the Act under which the citation or order was issued. Enter the regulation cited **exactly as it appears in Title 30 CFR**. If a 103(k) Order is issued, list this order as well.

In the space provided, indicate whether the violation cited is a citation or order, the type of action (i.e., 104(d)(1)), and briefly summarize the nature of each violation. For citations and orders issued to independent contractors, enter the Contractor ID in the space provided, labeled **IC**.

#### MSHA Information

26. Last Quarter Injury Nonfatal Days Lost Incidence Rate (Program Evaluation Information Resource): Enter the most recent **available** quarter's injury NFDL incidence rate for:

Industry - The rate for the applicable industry, using the appropriate subunit (i.e. underground, surface, dredge...).

This Mine - Enter the mine's injury incidence rate for the most recent quarter, using the appropriate subunit.

Contractor - If applicable, enter the contractor's injury incidence rate, using the appropriate subunit and industry for the primary contractor involved.

27. Did Technical Support participate in this investigation? Check the appropriate box.
28. Part 50 Document Control Number (MSHA Form 7000-1): This item should only be completed for **non-injury accidents if known**. (For accidents resulting in injuries, this information will be contained in the supplementary victim information.) The Part 50 Form document control number will be entered by PEIR following PEIR's receipt of the 7000-1 report.
29. MSHA District Office: Enter the name of the district in which the mine is located.
30. MSHA Field Office: Enter the field office in which the mine is located.
31. Date Last Regular Inspection Completed: Enter the date of the last completed regular inspection.
32. Lead Accident Investigator - Name, AR Number, Date: Identify the lead investigator for the accident investigation. Enter the Authorized Representative's name, AR Number, and the date on which this form was completed.
33. Date On-site Investigation Started: Enter the date on which the on-site investigation started.
34. Formal Report: Check "Yes" if a formal report is prepared for this investigation. If no formal report is prepared, check the "No" block and leave the date blank.
35. Report Release Date: Enter the date the formal report was released.

E. Victim Information Form (MSHA Form 7000-50b)  
Instructions. The Accident Investigation Data - Victim Information Form 7000-50b is used in conjunction with the Accident Investigation Data Form (MSHA Form 7000-50a). This form is used to record information for those victims with **reportable lost time (Degree 1 - 5) injuries**. Refer to Appendix 15 for clarity. Reportable injuries are those operators who are

required to report under 30 CFR Part 50. The form allows reporting of victim information for three individuals. Additional sheets should be used for accidents involving more than three victims.

Event Number: This is the event number assigned to the accident investigation.

1. Name of Injured/Ill Employee: Enter the name of the victim - First Name, Middle Initial, Last Name.
2. Sex: Enter "M" for male or "F" for female.
3. Victim's Age: Enter the victim's age in years.
4. Last Four Digits of Social Security Number: Enter the last four numbers in the victim's Social Security Number.
5. Degree of Injury: Reference Injury Degrees in Appendix 15. Enter both the code associated with the degree of injury and the description (e.g., 01, Fatal).
6. Date/Time of Death: For fatal accidents, enter the date and time of death, using the form MM/DD/YY and 24 hour time. For non-fatal accidents, leave blank.
7. Time Started: Enter the date and time the victim started work using 24 hour time.
8. Regular Job Title: Reference the list of mine occupations in Appendix 16. Enter both the code associated with the regular job of the victim and the descriptive job title.
9. Work Activity When Injured: Reference the list of work activities in Appendix 17. Enter both the code associated with the work activity and the description of the work activity in which the victim was engaged at the time of the accident.
10. Was this work activity part of the victim's regular job? Check the appropriate box.

11. Experience: Enter the number of years, weeks, and/or days of experience the victim had: a) in this work activity; b) in the regular job title; c) at this operation; and d) total mining experience.
12. What Directly Inflicted Injury or Illness? Reference the source of injury list in Appendix 18. The source of injury identifies the object, substance, exposure, or bodily motion which directly produced or inflicted the injury. Enter both the **code** of the injury source most closely describing that which caused the injury, as well as a **written description** of the injury source.
13. Nature of Injury or Illness: Reference the nature of injury or illness list in Appendix 19. Enter both the **code and description** for the nature of injury for the most serious injury incurred by the victim. Where an individual suffers several injuries, such as cuts and sprains, and no one injury is indicated as more serious than any other, classify as "multiple injuries."
14. Training Deficiencies: If the victim lacked any of the training required under Title 30 CFR Part 48, check those boxes which apply. This instruction includes independent contractors.
15. Company of Employment: If the victim is an employee of the production operator, enter "operator." If the victim is employed by any other company, enter the company name and, when applicable, the Independent Contractor ID. If the victim is not employed by a valid independent contractor or is a non-mining individual, enter the name of the company or the individual, without an ID Number.
16. On-Site Emergency Medical Treatment Available: Indicate the highest level of training of those individuals who were present with the victim at the accident site prior to delivery to an ambulance service or otherwise transported from the accident site.

Example: Three miners assist an injured victim: one had never received any training in emergency medical treatment; one was trained in Red Cross First Aid; and the third had completed an EMT course, but was not certified. The EMT box should be checked.

Not Applicable - Check if the victim died prior to being discovered.

First-Aid - Check if any individual had taken any form of a first aid course.

CPR - Check if any individual was trained in cardio-pulmonary resuscitation (CPR).

EMT - Check if any individual had at any time taken a full course of instruction for an Emergency Medical Technician.

Medical Professional - Check if any individual was a Medical Doctor, Registered Nurse, etc.

None - Check this box when none of the individuals at the accident site had ever received emergency medical training.

17. Part 50 Document Control Number: Enter the Part 50 Form document control number if known; otherwise the number will be provided by PEIR following receipt of the 7000-1 report.

18. Union Affiliation of Victim: Record the appropriate name or abbreviation of the union the victim is affiliated with. If the union organization cannot be found in Appendix 4, record **"ONL"** (Other Not Listed) and then accurately enter the name of the unlisted organization. If there is no union representation, write **"None."**

F. Independent Contractor Information Form (MSHA Form 7000-50c) Instructions. The Accident Investigation Data - Independent Contractor Information Form 7000-50c is used in conjunction with the Accident Investigation Data and Victim Information Forms (MSHA Forms 7000-50a and 7000-50b). This form is used to report independent

contractor information for all accidents MSHA investigates in which independent contractors are involved. The form allows reporting of information for three independent contractors. Additional sheets should be used for accidents involving more than three contractors.

Event Number: This is the event number assigned to the accident investigation.

1. Company Name: Enter the independent contractor's trade name.
2. MSHA ID Number: Enter the independent contractor's MSHA ID Number, if applicable, otherwise leave blank.
3. Type of Independent Contractor: Reference the list of independent contractor types in the Coding section. Enter the code for the type of independent contractor as well as the description.
4. Nature of Contract Work: Enter the description of the nature of the work being performed by the independent contractor from the register of independent contractors required under 30 CFR §45.4.
5. Number of Independent Contractor Employees On-site at Time of Accident: Enter the number of this contractor's employees on site at the time of the accident, with separate entries for the number of underground and surface employees.
6. Independent Contractor Officials: On the first line indicate the title, name, and address of the independent contractor's highest management official on site. If there is no supervisor, enter "No supervisor on site" on the first line. The Company President and other relevant officials (e.g., Safety Director) should also be listed. If there is a union representative, that person should be listed as well.

- G. Methane Ignition/Explosion Information (MSHA Form 7000-50d) Instructions. The Methane Ignition/Explosion Data Form is used in combination with other Accident Investigation Data forms. Form 7000-50d was primarily designed for recording data related to frictional face ignitions; however, the form should also be used to collect information during the investigation of all ignitions or explosions of methane. When used for ignitions/explosions not at the face, items 1, 2a, 8 (description), 14, 18, 22, 23, and 24 would usually be completed.

Additionally, following the investigation of a methane ignition, a legible, completed set of Accident Data Forms may be substituted for a written formal report. A methane ignition is usually a short duration burning of a small quantity of methane without indications of violence from expanding gases. At a minimum, the set of completed forms would include MSHA Forms 7000-50a and 7000-50d. Distribution of the completed Methane Ignition/ Explosion Accident Investigation Data Form set, when utilized as a report, would be the same as a formal report. A report cover page is recommended.

Event Number: This is the event number assigned to the accident investigation.

#### Section Information

1. Ignition or Explosion: Mark the appropriate box indicating the determination that the accident was either an ignition or explosion.
2. Location of Ignition/Explosion:
  - a. Description: Describe the location of the ignition such as the face area, longwall face, outby area, shaft, etc. Include the name of the area or section such as 1 Right, Main West Haulage Block 50, 2nd Level, etc.
  - b. MMU Number: (Coal Only) Record the Mechanized Mining Unit number assigned to the section when appropriate.

Note: Items 3 through 7 apply to Coal only.

3. Type of Mining: Indicate the type of mining conducted as development or retreat.
4. Extended Cut Approved in: If the event occurred on an active section, record which plan(s) contained extended cut approval information or requirements prior to the accident.
5. Extended cut used at time of accident: Indicate if extended cut was being taken at the time of the accident.
6. Depth extended cut approved (in feet): Record the maximum depth approved for the section on which the accident occurred.
7. Depth of extended cut at time of accident (in feet): Record the depth of the cut at the time of the accident.

B. Dust Suppression Information:

8. Water spray parameters:
  - a. Record the number of water sprays required by the ventilation plan.
  - b. Record the number of sprays observed during the investigation as actually operating.
  - c. Record water pressure (PSI) required by the ventilation plan.
  - d. Record the water pressure (PSI) measured during the investigation.
  - e. Record the water flow (GPM) required by the ventilation plan.
  - f. Record the water flow (GPM) measured during the investigation.
  - g. Briefly describe the type of water spray system used, type of scrubber, or type of fan system observed during investigation.



- h. Record the measured velocity in feet-per-minute for exhaust system ventilation (mean entry velocity).

Face Ventilation Information

- 9. Ventilation configuration: Record the ventilation configuration used in the accident area.
- 10. Ventilation control devices at time of ignition: Indicate the types of control(s) determined to be in place at the time of the accident.
- 11. Distance from inby end at ventilation control to face:
  - a. Record required distance in the approved ventilation plan.
  - b. Record distance at the time of accident as determined during the investigation.
- 12. Air quantities:

Note: Items a and b, and, c and d should be comparative readings.

- a. Indicate the air quantity at the last open crosscut or reaching the pillar line, as required by the regulations or the approved ventilation plan, in cubic feet per minute.
- b. Record the measured air quantity at the last open crosscut or reaching the pillar line as determined during the investigation.
- c. Indicate the air quantity at the face on a non-longwall face as required by the regulations or the approved ventilation plan.
- d. Record the measured air quantity at the face on a non-longwall section as determined during the investigation.
- e. Record diffuser fan capacity measured during the investigation where applicable.

- f. Record scrubber quantity measured during the investigation where applicable.

Methane Information

13. Methane liberation:

- a. On section: Record the methane liberation rate (cf/24 hours) as calculated during the investigation for the section involved in the accident. Generally, this is the results of bottle samples taken in the immediate return for an advancing section. For a retreating section, a combination of samples taken in the return and/or evaluation points should be used where practical.
- b. Category (M/MN Only): Identify the current category of the mine in accordance with Subpart 57.22003.

14. Source of methane accumulation:

- a., b., and c. Indicate the source of methane (for methane ignitions) as determined by the investigation. If other is marked, describe source (i.e., outburst).
- d. If a feeder is marked, briefly describe its location.

15. Was the methane monitor functioning properly?: Indicate results of functional tests of the methane monitor conducted during the investigation. Where a methane monitor is not a factor, indicate as Not Applicable (N/A).

16. Equipment involved maintained in permissible condition?: Indicate the determination of the investigation where mining equipment is a factor in the accident. Where equipment is not a factor, indicate as Not Applicable (N/A).

17. Location of methane monitor sensing head:
- a., b., and c. Indicate the location of the methane monitor sensor device, where appropriate, as looking toward the face. For longwall sections use the shear monitor.
  - d. Distance from face: Record the distance the sensor head was from the face at the time of the accident as determined by the investigation.

18. Barometric Pressure:

- a. Record the barometric pressure at the time of the accident as secured from an official source (airport, etc.).
- b. Indicate the movement of the barometer during the period of time before the accident.

Bit Information (Where mining equipment is involved)

- 19. Bit type: Briefly describe the type(s) of bits that were in use at the time of the accident.
- 20. Bit configuration: Briefly describe the bit configuration.
- 21. Condition of bits: Briefly describe the condition of the bits (worn on left side, good, etc.)

Other Information

- 22. Energy Source: Indicate the energy source that initiated the ignition/explosion as determined by the investigation. If "other" is marked, describe source (i.e., lightning).
- 23. Coke Samples Taken: Indicate whether samples for the presence of coke were taken as a part of the investigation.

24. Other Technical Data: Discuss or record any other important technical information specific to the accident. For example, "no air movement could be measured in the panel, all stoppings had been removed, and the area wasn't sealed."

H. Unintentional Fall of Roof/Back, Rib, or Face (MSHA Form 7000-50f) Instructions. The Unintentional Fall of Roof/Back, Rib, or Face Accident Data Form is used in combination with other Accident Investigation Data forms to record data related to falls of roof/back, rib, or face.

Event Number: Enter the event number assigned to the accident investigation.

#### General Information

1. Type of Fall: Mark the appropriate box indicating the type of fall. "Back" will be used for Metal/Nonmetal mines. For Item 1.e. (Rock burst), see Metal/Nonmetal definition in 30 CFR 57.3000.
2. Dimension of Fall:
  - a. Length: Describe the length in feet (rounded to the nearest foot).
  - b. Width: Describe the width in feet (rounded to the nearest foot).
  - c. Thickness: Describe the maximum thickness in feet and inches.
3. Width of Entry Room, etc. (in feet and inches): Describe in feet and inches.
4. Immediate Roof/Back Information:
  - a. Thickness: State the thickness of the immediate roof in feet and/or inches.
  - b. Strata Composition: Describe the composition of the immediate roof, such as firm, shale, sandstone, cracks (surface or otherwise), etc.

5. Main Roof/Back Information:
  - a. Thickness in feet (rounded): State the thickness of the main roof in feet (rounded). The main roof could be sandstone, shale, etc., not the immediate roof/back.
  - b. Strata Composition: Briefly describe composition of the main roof such as draw rock, shale, sandstone, etc.
6. Was the fall above the anchorage horizon of the bolts? Mark the proper box. Mark N/A if bolts were not used in the area of fall.
7. Did the fall affect ventilation, resulting in less than required quantity or quality of ventilation? Mark the proper box (Quality will usually be used for Metal/Nonmetal).
8. Did the fall affect the passage of workers leaving the affected area? Mark the proper box.
9. Did miners have any indication of a pending fall? Mark the proper box.
10. If indication was given, what type? Briefly describe the type of indication given such as the roof/back working, timbers/posts cracking or taking weight, roof bolts breaking, etc.

Fall on Working Section/Active Face Area

11. Type of Roof/Back Support: Briefly describe the types of roof/back support being used, such as resin bolts, conventional bolts, timbers/posts, cable bolts, truss bolts, concrete, steel sets, etc.
12. Type of ATRS (Coal only): Describe the type of ATRS being used, such as a doughnut, ironing board, etc.
13. Type of Original Support in Fall Area: Briefly describe the types of roof/back support that were used, such as resin bolts, conventional bolts, timbers/posts, cable bolts, truss bolts, concrete, steel sets, etc.

14. Distance Between Fall and Face: Measured distance between the nearest face and the fall in feet and estimated inches.

Fall Outby Working Section/Previously Developed Area

15. Location and Type of Entry (intake, return, main haulage, etc.): Briefly describe in what entry or crosscut the fall occurred.
16. Approximate Date of Development: Enter the date the area in which the fall occurred was developed (using MM/DD/YY).
17. Type of Original Support in Fall Area: Briefly describe the type of roof supports being used, such as resin bolts, conventional bolts, timbers/posts, cable bolts, truss bolts, etc.

Operator's Investigation

18. Did the operator investigate the fall? Mark the proper box.
19. What did the operator determine to be the cause of the fall? Briefly describe the mine operator's determination of the cause of the fall.
20. What steps did the operator take to prevent a similar occurrence? Briefly describe these steps, such as longer roof bolts, cribs, timbers/posts, etc.

Plan Revisions

21. Are plan revisions anticipated (Coal only)? Mark the appropriate box.

- I. Continuation Form (MSHA Form 7000-50e) Instructions.  
The Continuation Form is a multipurpose form which can be used to continue narrative sections of the other forms. Enter the Event Number and indicate which item the continuation is associated with.

## Chapter 5 - Investigation of Occupational Illnesses and Incidents Causing Acute Health Effects

### I. General

Investigations of chemical exposures, illness symptoms or disease cases provide valuable information to the mining community about health hazards. The purpose of investigating these health-related symptoms and illnesses is:

- a. to understand how the exposure occurred;
- b. to learn whether other employees have been affected by the same hazard;
- c. to learn the employee's current health status (Was the condition temporary or permanent?) and employment status;
- d. to learn what measures have been taken by the mine operator to prevent similar occurrences; and
- e. to share information regarding the hazard, the illness and the outcome within MSHA, and with the larger mining community.
- f. determine if there has been a violation of any mandatory health standards.

### II. General Requirements

When an MSHA Form 7000-1 is received, the reviewer should pay specific attention to reports involving the situations described below. The reviewing official should determine whether to recommend an investigation of the occurrence to the District Manager. When a decision is made to investigate the accident, a preliminary report must be sent to the headquarters Accident Investigation Program Manager within 48 hours.

Symptoms or conditions related to:

Inhalation or dermal exposure to an acid or a base.  
Symptoms or conditions may include difficulty breathing, eye burns, loss of sight, rashes and skin

burns. Examples of sources: Hydrochloric acid is used at gold mines for carbon washing and copper mines use sulfuric acid for leaching. Bases include lye and lime, both wet and dry. Lime is used at cement plants.

Inhalation or dermal exposure to an asphyxiant. Symptoms or conditions may include blurred vision, dizziness, headache, nausea, and loss of consciousness. Examples of sources: Carbon monoxide (CO), cyanide gas (HCN) and salt solutions such as potassium cyanide (KCN) and sodium cyanide (NaCN) are all asphyxiants. Cyanide (CN) may be encountered by miners working at gold and silver operations. Carbon monoxide (CO) may pose a risk to many miners, in particular, those involved in blasting operations.

Inhalation, ingestion, or dermal exposure to heavy metals. Symptoms or conditions may include memory loss, tremors and weakness. Miners may be exposed to heavy metals, such as arsenic, cadmium, lead and mercury, during mining and while welding.

Inhalation of respirable particulates, such as coal mine dust and silica. Investigations should be conducted on miners with 20 years or less mining experience who develop advanced black lung disease, such as progressive massive fibrosis or STAGE 2 coal workers' pneumoconiosis, or silicosis.

Inhalation of respiratory irritants which result of burning in the eyes, nose or throat, cough and difficulty breathing. These include: ammonia (NH<sub>3</sub>), chlorine (Cl<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), and phosphine (PH<sub>4</sub>). Ammonia and chlorine are used in the extraction process at some mining operations. Phosphine may be formed in some mines when moisture reacts with metallic phosphides. One source of nitrogen dioxide is exhaust from diesel powered equipment.

Inhalation or dermal exposure to sensitizers which can cause reddening or swelling of the skin, cough, difficulty breathing and possible collapse. Roof bolters, for example, may be exposed to sensitizers such as isocyanates, MDI, or TDI. Miners working in flotation operations may be exposed to chemicals such as amines and other flocculants, for example,



isododecyloxypropyl, aminopropylamine, and propanediamine.

Inhalation or dermal exposure to organic solvents which are often used for cleaning. Stoddard solvent and chlorinated solvents may cause dizziness, headache, nausea, skin inflammation (dermatitis) and skin rashes.

The District Manager, the Administrator or the Division of Health Chief may also initiate investigations covering other health-related matters, including situations where a MSHA Form 7000-1 report may not have been submitted. For example, an inspector learns that a former miner is suffering from tremors and memory loss, possibly related to their former work at the mine as a welder.

A reviewer may also consider following up on certain cases where the "return-to-work" information has not been reported or filed and the description of the impairment suggests that the employee may be off work for an extended period of time. The reviewer should check with MSHA's Office of Injury and Employment Information (303-231-5448) to find out whether the mine operator has submitted the "return-to-work" information. If not, the reviewer should consider contacting the miner named in the MSHA Form 7000-1 and determine his/her health and employment status.

### **III. Investigations**

Investigations of occupational illness should be conducted by industrial hygienists, health specialists, or other persons assigned by the District Manager. When appropriate, Technical Support personnel, such as the toxicologist, should participate in or be consulted about the investigation.

Each investigation should include a thorough review of the mine file including the operation's sampling history, the 7000-1 in question, other 7000-1's reporting similar illnesses (in particular at other operations with the same controlling company), and any studies or relevant information.

During the course of the investigation, the following information should be obtained:

- the age of the employee;
- number of years the employee has worked in the mining industry;
- number of years the employee has worked at the operation where the condition was reported;
- the length of time elapsed since the condition(s) or symptoms first developed;
- the work-exposure history of the employee at previous work sites and at the site where the condition was reported;
- whether any personal protective equipment was provided and/or used;
- information about any hazard awareness training provided to the employee;
- the employee's current medical condition and any associated treatment;
- the employee's current employment status;
- whether the employee was transferred to a different job or position due to the illness;
- the employee's knowledge of any co-workers reporting or suffering from similar symptoms or illness;
- whether a workers' compensation claim was filed, and the status of the claim; and
- whether the employee will provide written permission to MSHA for the investigator to discuss the case with, or to obtain documentary information from, the attending physician. If written permission is obtained from the employee, a copy of the document must be maintained in the case file, and upon final disposition of the case, filed in the official mine file. (See Section IV for a suggested format.)

#### IV. Sources of Information

All contacts or conversations made regarding the investigation should occur only after the employee involved has been notified by the investigator. The employee's right to privacy concerning his/her health must be respected. Contact should not be made with the employee at his/her work site unless specifically asked to do so by the employee.

When contacting the employee named on the Part 50 report, she/he should be informed that MSHA is investigating the case. It should be explained that MSHA is not investigating either the merit or validity of any workers' compensation claim that the employee may have filed.

You should notify the employee that any medical information provided to MSHA will be treated confidentially and will be protected under the Privacy Act.

You may want to contact the physician who treated the employee if you have questions concerning the illness case. A physician, however, may require written permission before discussing the case or before providing any information.

A suggested format for the employee's consent to release medical information follows:

I,       (Name)       hereby consent to the release of my personal and private medical information, now in the possession of any medical facility, hospital, clinic, or physician, to any identified representative of the Mine Safety and Health Administration (MSHA), U.S. Department of Labor.

I give such consent freely, without reservation, and without promise of consideration. I further agree to indemnify and hold harmless, any institution or physician providing such information, in any form, to an identified representative of MSHA.

I understand that MSHA will treat all such information confidentially and will protect the same in accordance with the provisions of the Privacy Act.

Date:


Date:

## V. Findings and Memorandum

5-6

# Preliminary Report of Accident

## MSHA Form 7000-13

PR000		<b>Preliminary Report of Accident</b>		U.S. Department of Labor Mine Safety and Health Administration			
1. Accident Type:	2. Accident Classification:	3. Date/Time of Accident:	4. Date/Time of Death	5. Fatal Case No			
6. Mine Information :							
a) Mining Company Name		b) Mine Name		c) Parent of Mining Company			
7. Mine Location :		a) City	b) County	c) State	8. Mine ID Number		9. Union:
10. Primary Mineral Mined:	11. Number of Mine Employees:		a) Total	b) Underground	c) Open Pit/Quarry	d) Mill/Prep Plant	e) Other
12. Contractor Name:				13. Union:		14. Contractor ID Number:	
15. Contractor Address:		a) City	b) County	c) State	d) Zip Code		
16. Number of Contractor Employees:		a) Total	b) Underground	c) Open Pit/Quarry	d) Mill/Prep Plant	e) Other	
17. Number of Persons in Mine at Time of Accident:				18. Number of Persons Unaccounted For:			
a) Mine Employees:		b) Contractor Employees:		a) Mine Employees:		b) Contractor Employees:	
19) Location of Accident:							20. Mining Height:
<input type="checkbox"/> 01-Underground	<input type="checkbox"/> 03-Open Pit	<input type="checkbox"/> 07-Advance Mining	<input type="checkbox"/> 30-Mill/Prep Plant	<input type="checkbox"/> Other (specify)		Feet	Inches
<input type="checkbox"/> 02-Surface at Underground	<input type="checkbox"/> 06-Dredge Mining	<input type="checkbox"/> 08-Retreat Mining	<input type="checkbox"/> 99-Office Facility				
21. Nonfatal Injuries:		22. Fatal Injuries:					
23. Victim Information :		a) Name	b) Age	c) SSN			
d) Regular Job Title:		e) Activity at Time of Accident:				<input type="checkbox"/> Mine Employee <input type="checkbox"/> Contractor Employee	
24. Experience :		Years Weeks Days	Years Weeks Days	Years Weeks Days	Years Weeks Days		
a) Total:		b) at the mine:		c) at activity (23e)		) with Contractor	
25. Autopsy Performed:		If Yes, Location	26. Name and Relationship of Next of Kin:		No. of Dependents	27. Notifying Mine Person (Name Phone):	
28. Description of Accident:							
29. Equipment Manufacturer:				30. Model:			
31. District:		33. Field Office:			34. Event Number:		
35. Accident Investigator:			36. MSHA Person Notified:		Date:	Time:	
37. Type of Report:		38. Name of Preparer and Date Prepared:					
39. Reason For Amendment:							

MSHA Form 7000-13, May 94 (revise)

## NOTES



# Accident Investigation Data MSHA Form 7000-50a (Cont'd)

24. Conclusion:

Continued on attachment \_\_\_\_\_

25. Contributory Issuances: Indicate P for procedure type violation, C for condition type, or T for Training type.

Violation Type	Citation Number	Regulation Cited	Section of the Act
P C T			

Citation Order Type of Action: Summary of Violation:

IC:

P C T			
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Citation Order Type of Action: Summary of Violation:

IC:

P C T			
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Citation Order Type of Action: Summary of Violation:

IC:

P C T			
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Citation Order Type of Action: Summary of Violation:

IC:

P C T			
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Citation Order Type of Action: Summary of Violation:

IC:

P C T			
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Citation Order Type of Action: Summary of Violation:

IC:

## C. MSHA Information

26. Last Quarter NFDL Injury Incidence Rate (PEIR) for:		27. Did Technical Support participate in this investigation?		28. Part 50 Document Control Number: (Form 7000-1)	
Industry:	This Mine:	Contractor:	Yes <input type="checkbox"/> No <input type="checkbox"/>		
29. MSHA District Office:			30. MSHA Field Office:		31. Date Last Regular Inspection Completed:
					Date: ____/____/____
32. Lead Accident Investigator: Name; AR Number; Date			33. Date On-site Investigation Started:		34. Formal Report:
Name: _____ Date: ____/____/____			Date: ____/____/____		Yes <input type="checkbox"/> No <input type="checkbox"/>

MSHA Form 7000-50a, Dec 94



**MINE SAFETY AND HEALTH ACCIDENT/ILLNESS INVESTIGATION HANDBOOK**

MSHA Form 7000-50a Codes

Appendices 3-13 contain the codes to be used with the Accident Investigation Database General Information Form 7000-50a.

## NOTES

**State Code Reference**  
**MSHA Form 7000-50a, Item 4**

FIPS			FIPS		
STATE	STATE	STATE	STATE	STATE	STATE
ABBR	NAME	CODE	ABBR	NAME	CODE
AK	Alaska	02	MT	Montana	30
AL	Alabama	01	NC	North Carolina	37
AR	Arkansas	05	ND	North Dakota	38
AZ	Arizona	04	NE	Nebraska	31
CA	California	06	NH	New Hampshire	33
CO	Colorado	08	NJ	New Jersey	34
CT	Connecticut	09	NM	New Mexico	35
CZ	Panama Canal	61	NV	Nevada	32
DC	Dist of Columbia	11	NY	New York	36
DE	Delaware	10	OH	Ohio	39
FL	Florida	12	OK	Oklahoma	40
GA	Georgia	13	OR	Oregon	41
HI	Hawaii	15	PA	Pennsylvania	42
IA	Iowa	19	PR	Puerto Rico	72
ID	Idaho	16	RI	Rhode Island	44
IL	Illinois	17	SC	South Carolina	45
IN	Indiana	18	SD	South Dakota	46
KS	Kansas	20	TN	Tennessee	47
KY	Kentucky	21	TX	Texas	48
LA	Louisiana	22	UT	Utah	49
MA	Massachusetts	25	VA	Virginia	51
MD	Maryland	24	VI	Virgin Islands	78
ME	Maine	23	VT	Vermont	50
MI	Michigan	26	WA	Washington	53
MN	Minnesota	27	WI	Wisconsin	55
MO	Missouri	29	WV	West Virginia	54
MS	Mississippi	28	WY	Wyoming	56

## NOTES

**Union Code Reference**  
**MSHA Form 7000-50a, Item 4(b)**

Description	Code	Description	Code
None (No Union Affiliation)	9999	Coopers International Union	2493
Other not listed	9000	Council For Oil & Allied Indus	2562
Aerospace IEM	2637	Council of Southern Mountains	2704
AFL	2648	County & Mun Employees-Sharon	2658
AFL-AIO	2649	Crow Hollow Miners Union	2702
AFL-CIO	2647	Dist 50 Allied & Tech Workers	2629
AFL-FIO	2667	Distributed Workers of America	2663
AJO Metal Trades Council	2676	Employees Assn. of Armco Steel	2686
Alaska Public Employees Assn.	2684	Equipment Engineers	2692
Albany Trucking & Allied Indus	2664	Federal Labor Union	2688
Allied Chem. & Alkali Workers		Gen Building & Construction	2646
(ACAW)	2685	Gen Laborers & Material	
Allied Industrial Workers (AIW)	2530	Handlers	2631
Alum., Brick & Glass Wkrs Int Un	2726	Gen Teamsters & Allied	
Aluminum Workers Int. Union	2466	Workers	2630
Amalgamated Transit Union	2621	Gen Teamsters Deliverymen	2635
Amer Fed St Co & Mun Employees	2515	General Laborers Union	2659
Amer Train Dispatchers Assn	2586	Glass,Potery,Plast & Allied	
Amer. Fed. of Grain Millers	2554	Wkrs	2582
Amer. Postal Workers Union	2576	Globe Miami Trades Council	2675
American Communications Assn.	2489	Granite Cutters Int. Assn.	2521
American Fed. Govt. Employees	2514	Heavy Equipment Laborers	
American Fed. of Teachers	2607	Union	2641
American Federation of Guards	2523	Hermanidad Genrl De	
American Flint Glass Workers	2511	Trabajadores	2725
Appalachian Miners of America	2705	Hod-Carriers-Laborers	2699
Assn. Plumbers & Pipe Fitting	2572	Hoisting Engineers	2655
Atlantic Independent Union	2690	HREBIU	2529
Automotive Mechanics	2669	Ind Concrete Material	
B. of Locomotive Engineers	2587	Handlers	2719
B. of Maintenance Way Employees	2588	Ind Miners Breakerman	
B. of Railroad Signalmen	2589	Truckers	2712
B. of Railway Carmen	2594	Ind. Union of Marine Workers	2547
B. of Utility Workers of N.E.	2625	Independant Watchmens Assn.	2628
Bldg & Trades Council Eagle Mt	2634	Independent Miners & Assoc.	2711
Brotherhood of Marine Officers	2546	Independent Strip Miners	
Building Laborers Int.	2652	Union	2709
Butte Machinists Union	2650	Independent Union	2689
Butte Teamsters	2651	Independent Workers of No.	
Cement, Lime & Gypsum Workers	2484	Amer.	2729
Chariton Valley Ind. Union	2707	Int Fed Pro & Tech Engineers	2500
Coal Strippers	2710	Int Union Elevator	
Columbia River Gorge Comm.	2680	Constructor	2499
Communications Workers	2490	Int Union Operating Engineers	2501
Congreso Uniones Ind De P.R.	2727	Int. Assn. Fire Fighters	2505
Congress of Independent Unions	2693	Int. Assn. Iron Workers	2534
Construction & Gen. Laborers	2653	Int. Assn. of Asbestos	
		Workers	2467

**Union Code Reference**  
**MSHA Form 7000-50a, Item 4(b)(Con't)**

Description	Code	Description	Code
Int. Assn. of Machinists	2543	Operators Union	2678
Int. Assn. of Siderographers	2603	Oregon State Employees Assn.	2718
Int. Assn. Tool Craftsmen	2618	Plant Protection Employees	2570
Int. B. Electrical Workers (IBEW)	2496	Plasters & Cement Masons Assn.	2571
Int. B. of Boilermakers (IBB)	2473	Professional Association	2520
Int. Brotherhood of Painters	2564	Progressive Mine Workers	2706
Int. Brotherhood of Teamsters (IBT)	2609	Railroad Yardmasters of Amer.	2590
Int. Chemical Workers Union	2485	Railway & Airline Supervisors	2592
Int. Longshoremens Ass'cn	2541	Redstone Workers Association	2668
Int. Longshoremens Union	2542	Rockport Employees Assn.	2657
Int. Molders & Allied Workers	2556	S. Illinois Dist Labor Council	2698
Int. U. Journeymen Horseshoers	2527	Service Employees Int. Union	2598
Int. Union Electrical Workers	2497	Sheet Metal Workers Int. Assn.	2599
Int. Union of Bricklayers	2477	Sindicato De Equipo Pesado	2715
Int. Union Petroleum Workers	2568	Sand Gravel & Cut Stone Worker	2670
Int. Woodworkers of America	2682	Scotia Employees Union	2703
International Guards Union	2524	Slate Tile & Comp. Roofers	2604
International Mailers Union	2544	Society Tool & Die Craftsmen	2619
Journeyman Stone Cutters	2695	Southern Labor Union	2701
Klickitat Co. Planning Comm.	2679	Southwestern Illinois Council	2697
Laborers Dist Council of Phila	2632	Staff Officers Association	2584
Laborers Dist Council of W Pa.	2633	Stoughton Employees Assn.	2656
Laborers Int. Union	2480	Stove Furnace Appliance Workers	2606
Labors Local	2728	System Federation	2717
Lumber & Sawmill Workers	2639	Technical Engineers Assn.	2502
Machine Printers & Engravers	2583	Thomas Legal Defense Fund	2507
Machinists Political League	2573	Tile Marble Terrazzo Finishers	2545
Madison Federation of Labor	2645	Tile Workers Independent Union	2642
Masters, Mates & Pilots	2548	Transport Workers Union	2622
Material Yardworkers	2665	Tri-Trades Union	2683
Mechanics	2671	Truckdrivers & Helpers Union	2666
Mechanics Educational Society	2552	Union De Concreto Mixto Y Equipo	7222
Metal Polishers Buffer Plater U	2553	Union De La Construction DeCt	2724
Metals Trade Union	2700	Union De Trabajadores De La Cm	2720
Morenci-Clifton Trades Council	2674	Union De Trabajadores Indep Lib	2713
Municipal Employees	2661	Union Obreros Cmt Mezclado	2721
N. M. Highway Employees Assn.	2691	Union Trabajadores Unidos	2714
Nat Alliance Postal & Fed Emp	2577	United Automobile Workers	2468
Nat. Assn. Govt. Employees	2517	United B. Carpenters & Joiners	2482
Nat. Fed. Federal Employees	2518	United Bonneville Workers Assn	2644
Nat. Labor Relations Board U.	2519	United Brick & Clay Workers	2476
Nat. Marine Engineers Assn.	2550	United Electrical Workers	2498
National Industrial Workers	2531	United Glass & Ceramic Workers	2512
National Maritime Union	2551	United Industrial Workers	2662
Needham Public Works Assn.	2660	United Laborers Union	2636
Office & Professional Employees	2561	United Mine Workers of America	
Oil, Chemical & Atomic Workers		(UMWA)	2555
(OCAW)	2486		

**Union Code Reference**  
**MSHA Form 7000-50a, Item 4(b)(Con't)**

<b>Description</b>	<b>Code</b>
United Paperworkers Int. Union	
(UPIU)	2565
United Plant Guard Workers	2569
United Rubber Workers of Amer.	2597
United Rubber Workers Union	2696
United Shoe Workers of America	2602
United Steel Workers of	
America (USWA)	2605
United Stone & Allied Products	2694
United Telegraph Workers	2610
United Transportation Union	2591
Uranium Metals Trade Council	2716
USAPWA	2638
Washington St. Council of Emp.	2681
Wayland Highway Dept. Assn.	2654
Welch Miners Union	2708
Western Energy Workers	2687
White Pine Metal Trade Council	2673
WMRRE	2672
Wood Wire & Metal Lathers	2537
WPPSS	2677
Wyoming Construction Comp Assn	2643

## NOTES



**Mine Type Reference**  
**MSHA Form 7000-50a, Item 5**

<b>Code</b>	<b>Description</b>
A	Auger
C	Culm Bank/Refuse Pile
D	Dredge
I	Independent Shop/Yard
M	Mill/Preparation Plant
S	Strip/Open Pit Quarry
U	Underground

## NOTES

**Material Mined (SIC Code) Reference**  
**MSHA Form 7000-50a, Item 6(a)**

Code	Description	CMDTY
149932	Agate Mining	N
281901	Alumina Milling	N
109901	Aluminum Ore-Bauxite Mining	M
149933	Amethyst Mining	N
123101	Anthracite	C
123100	Anthracite Mining	C
109902	Antimony Ore Mining	M
145901	Aplite Mining	N
147901	Arsenic Minerals Mining	N
149901	Asbestos Mining	N
149902	Asphalt Mining	N
147902	Barite/Barium Ore Mining	N
142905	Basalt Mining, Crushed & Broken	N
141107	Basalt Mining, Dimension	N
145902	Bentonite Mining	N
109903	Beryl-Beryllium Ore Mining	M
122201	Bituminous	C
122101	Bituminous (Surface)	C
122100	Bituminous Coal and Lignite Surface Mining	C
122200	Bituminous Coal Underground Mining	C
147401	Boron Minerals Mining, N.E.C.	N
145903	Brucite Mining	N
142201	Calcitic Limestone Mining, Crushed & Broken	S
324100	Cement, Hydraulic	S
147900	Chemical & Fertilizer Minerals Mining, N.E.C.	N
106101	Chromite/Chromium Ore Mining	M
145906	Clay Mining, Fire	N
145501	Clay, Ball	N
145900	Clay, Ceramic & Refractory Minerals Mining, N.E.C.	N
145904	Clays Mining, Common, N.E.C.	N
106102	Cobalt Ore Mining	M
147903	Colloidal Phosphate Mining	N
106103	Columbium/Tantalum Ore Mining	M
102101	Copper Mining, Native	M
102100	Copper Ore Mining, N.E.C.	M
102195	Copper, Heap Leaching	M
102199	Copper, in Situ Leaching	M
144604	Cristobalite, Ground	G
149903	Cryolite Mining	N
149934	Diamond Mining	N

**Material Mined (SIC Code) Reference**  
**MSHA Form 7000-50a, Item 6(a) (Con't)**

Code	Description	CMDTY
149904	Diatomaceous Earth (Diatomite) Mining	N
142203	Dolomite Mining, Crushed & Broken	S
142202	Dolomitic Limestone Mining, Crushed & Broken	S
149935	Emerald Mining	N
145905	Feldspar Mining	N
106100	Ferroalloy Ores(Except Vanadium)Mining, N.E.C.	M
106195	Ferroalloys, Heap Leaching	M
106199	Ferroalloys, in Situ Leaching	M
147904	Fluorspar Mining	N
145907	Fuller's Earth Mining	N
103101	Galena Mining	M
149936	Garnet Mining	N
149931	Gemstones Mining, N.E.C.	N
149905	Gilsonite Mining	N
142301	Gneiss Mining, Crushed & Broken	S
141108	Gneiss Mining, Dimension	S
104103	Gold Bullion Production	M
104100	Gold Ore Mining, N.E.C.	M
104195	Gold, Heap Leaching	M
104199	Gold, in Situ Leaching	M
142300	Granite Mining, Crushed & Broken	S
141101	Granite Mining, Dimension	S
149906	Graphite Mining	N
144202	Gravel Mining	G
149907	Gypsum Mining	N
101101	Hematite Mining	M
281900	Industrial Inorganic Chemicals Mining, N.E.C.	N
101103	Iron Agglomerate & Pellet Production	M
101104	Iron Ore Dressing (Beneficiation) Plant	M
101100	Iron Ore Mining, N.E.C.	M
101195	Iron, Heap Leaching	M
101199	Iron, in Situ Leaching	M
149937	Jade Mining	N
145502	Kaolin	N
145500	Kaolin/Ball Clay Mining	N
145908	Kyanite Mining	N
103102	Lead Ore Mining	M

**Material Mined (SIC Code) Reference**  
**MSHA Form 7000-50a, Item 6(a) (Con't)**

Code	Description	CMDTY
103100	Lead/Zinc Ore Mining, N.E.C.	M
103195	Lead/Zinc, Heap Leaching	M
103199	Lead/Zinc, in Situ Leaching	M
149908	Leonardite Mining	N
122102	Lignite	C
327401	Lime, Dead-Burned	S
327402	Lime, Hydrated	S
327400	Lime, N.E.C.	S
142200	Limestone Mining, Crushed & Broken, N.E.C.	S
141102	Limestone Mining, Dimension	S
147905	Lithium Minerals Mining	N
104101	Lode Gold Mining	M
145909	Magnesite Mining	N
101102	Magnetite Mining	M
106104	Manganese Ore Mining	M
142901	Marble Mining, Crushed & Broken	S
141103	Marble Mining, Dimension	S
109904	Mercury Ore Mining	M
149909	Mica Mining	N
142906	Mica Schist Mining, Crushed & Broken	N
141109	Mica Schist Mining, Dimension	N
109995	Misc. Metals, Heap Leaching	M
109999	Misc. Metals, in Situ Leaching	M
109900	Miscellaneous Metal Ore Mining, N.E.C.	M
149900	Miscellaneous Nonmetallic Minerals Mining, N.E.C.	N
106105	Molybdenum Ore Mining	M
106106	Nickel Ore Mining	M
131112	Oil Sand Mining	N
131111	Oil Shale Mining	N
149938	Olivine Mining	N
144203	Pebble Mining	G
149910	Perlite Mining	N
147500	Phosphate Rock Mining	N
147906	Pigment Minerals Mining	N
109403	Pitchblende Mining	M
104102	Placer Gold Mining	M
109905	Platinum Group Ore Mining	M
147402	Potash Mining	N
147400	Potash, Soda & Borate Minerals Mining, N.E.C.	N

**Material Mined (SIC Code) Reference**  
**MSHA Form 7000-50a, Item 6(a) (Con't)**

Code	Description	CMDTY
147405	Potassium Compounds Mining, N.E.C.	N
149911	Pumice Mining	N
147907	Pyrites Mining	N
149912	Pyrophyllite Mining	N
149939	Quartz Crystal Mining	N
144605	Quartz, Ground	G
142907	Quartzite Mining, Crushed & Broken	S
141110	Quartzite Mining, Dimension	S
327403	Quicklime	S
109404	Radium Ore Mining	M
109495	Radium/Uranium/Vanadium, Heap Leaching	M
109499	Radium/Uranium/Vanadium, in Situ Leaching	M
109906	Rare Earths Ore Mining	M
149940	Ruby Mining	N
147908	Salt Mining	N
289900	Salt, Brine/Evaporated	N
144200	Sand & Gravel Mining, Construction, N.E.C.	G
144201	Sand Mining, Common	G
144601	Sand, Abrasive	G
144602	Sand, Foundry	G
144603	Sand, Glass	G
144600	Sand, Industrial, N.E.C.	G
142902	Sandstone Mining, Crushed & Broken	S
141104	Sandstone Mining, Dimension	S
149941	Sapphire Mining	N
145910	Shale Mining, Common	N
149913	Shell Mining	N
104401	Silver Bullion Production	M
104400	Silver Ore Mining, N.E.C.	M
104495	Silver, Heap Leaching	M
104499	Silver, in Situ Leaching	M
142903	Slate Mining, Crushed & Broken	S
141105	Slate Mining, Dimension	S
149914	Soapstone Mining	N
147403	Sodium Compounds Mining, N.E.C.	N
142900	Stone Mining, Crushed & Broken, N.E.C.	S
141100	Stone Mining, Dimension, N.E.C.	S
147909	Strontium Minerals Mining	N
147910	Sulfur Mining	N
149915	Talc Mining	N

**Material Mined (SIC Code) Reference**  
**MSHA Form 7000-50a, Item 6(a) (Con't)**

Code	Description	CMDTY
109907	Tin Ore Mining	M
109908	Titanium Ore Mining	M
149942	Topaz Mining	N
142904	Traprock Mining, Crushed & Broken	S
141106	Traprock Mining, Dimension	S
149916	Tripoli Mining	N
147404	Trona Mining	N
106107	Tungsten Ore Mining	M
149943	Turquoise Mining	N
109401	Uranium Ore Mining	M
109400	Uranium/Vanadium Ore Mining, N.E.C.	M
109402	Vanadium Ore Mining	M
149917	Vermiculite Mining	N
149918	Zeolites Mining	N
103103	Zinc Ore Mining	M
109909	Zirconium Ore Mining	M

## NOTES



**Mining Method Reference**  
**MSHA Form 7000-50a, Item 8(a)**

<b>Code</b>	<b>Description</b>
05	Block Caving
07	Cut/Fill
03	Dredge
08	Longwall
01	Multi-bench (Open Pit)
09	Other
04	Room/Pillar
02	Single Bench (Open Pit)
06	Stope

**Extraction Method Reference**  
**MSHA Form 7000-50a, Item 8(b)**

<b>Code</b>	<b>Description</b>
04	Continuous Miner (Deep-cut, Coal only)
03	Continuous Miner (Normal-cut)
07	Highwall Miner (Coal only)
08	Other
01	Plow
02	Shearer
05	Shovel/Dragline/Loader
06	Surface Auger

**Haulage Method Reference**  
**MSHA Form 7000-50a, Item 8(c)**

<b>Code</b>	<b>Description</b>
02	Contin Haul (Mobile bridge, Flex coal)
01	Conveyor Belt
08	Other
04	Rail/Track
07	Scoop/LHD/Loader
06	Shuttle Car/Ram Car
05	Slurry Pipe
03	Truck

## NOTES

**Accident Classification Reference**  
**MSHA Form 7000-50a, Item 18**

Code	Description
32	All Other Occupational Illnesses
31	Disorders Assoc with Repeated Trauma
30	Disorders via Physical Agents, Not Toxic
27	Dust Diseases of the Lungs
01	Electrical
02	Entrapment
03	Exploding Vessels under Pressure
04	Explosives and Breaking Agents
06	Fall of Face, Rib, Pillar or Highwall
07	Fall of Roof or Back
05	Falling, Rolling or Sliding Rock /Material
08	Fire
09	Handling Material
10	Handtools
13	Hoisting
14	Ignition or Explosion of Gas or Dust
15	Impoundment
16	Inundation
17	Machinery
11	Non-Powered Haulage
26	Occup Skin Diseases and Disorders
21	Other Accident
29	Poisoning
12	Powered Haulage
28	Respiratory Conditions via Toxic Agents
18	Slip or Fall of Person
19	Stepping or Kneeling on Object
20	Striking or Bumping

## NOTES

**Surface Location Reference**  
**MSHA Form 7000-50a, Item 20(a)**

<b>Code</b>	<b>Description</b>
03	Auger Operation
04	Construction Area
05	Culm Bank/Refuse Pile
06	Dredge
09	Haulageway
01	Mill/Preparation Plant
08	Office Facility
10	Other Surface Area
07	Shop
02	Strip/Open Pit Area

**Underground Location Reference**  
**MSHA Form 7000-50a, Item 20(b)**

<b>Code</b>	<b>Description</b>
03	Face
08	Haulageway
07	Inby Permanent Support
04	Intersection
06	Last Open Crosscut
10	Other
09	Other Entry
02	Slope/Inclined Shaft
05	Underground Shop/Office
01	Vertical Shaft

## NOTES

**Mining Equipment Type Reference**  
**MSHA Form 7000-50a, Item 22**

Code	Description	Code	Description
080100	Acoustic tape recorder		
080200	Acoustic transceiver	110100	Concrete equip-mine sealant machine
010000	Aerial tramway		
020000	Aircraft	110200	Concrete equip-water spray unit
020100	Aircraft-Airplane		
020200	Aircraft-Helicopter	110000	Concrete placement equipment
030000	Alarm	520300	Conditioner tank
030100	Alarm-Audible	120100	Continuous miner-no roof drills
030200	Alarm-Audible/Visual		
030300	Alarm-Visual	120200	Continuous miner with roof drills
510100	Asbestos substitute packing		
660100	Audio dosimeter	120000	Continuous mining machine
040000	Auger	130000	Conveyor
040100	Auger-Coal	130100	Conveyor belt
040200	Auger-Drill (not roof bolting)	130200	Conveyor belt-bucket
		130300	Conveyor belt-chain
520100	Autoclave	130103	Conveyor belt-fixed
240300	Blaster Galvanometer/multimeter/ ohmmeter)	130400	Conveyor belt-hydraulic
		130102	Conveyor belt-other mobile systems
050100	Blasting agent (ANFO)loader-portable	130500	Conveyor belt-pan
050000	Blasting equipment	130600	Conveyor belt-pneumatic
050200	Blasting machine	130700	Conveyor belt-screw (auger)
050201	Blasting machine-Large capacity	130101	Conveyor belt-mobile bridge carrier sys
050202	Blasting machine-multiple-shot	140000	Crane
		140100	Crane-fixed
050203	Blasting machine-Single-shot	140101	Crane-fixed derrick
		140102	Crane-fixed tower
050204	Blasting machine-Ten-shot	140200	Crane-mobile
050205	Blasting machine-Twenty-shot	140201	Crane-mobile-crawler mounted
060000	Boat, barge, float, pontoon	140202	Crane-mobile-locomotive
560301	Box car	140300	Crane-mobile-Overhead and gantry
070000	Brake system not mobile/self-propelled	140203	Crane-mobile-truck mounted
510200	Brattice cloth	710100	Crawler (bulldozer)
270200	Bucket wheel excavator	150000	Cutting machine-coal/salt/soft minerals
540100	Camera		
560400	Car dump system	080300	Data logger
520200	Classifier	080400	Data tape recorder
560302	Coal or ore car	080500	Data transceiver
080000	Communication equipment	160100	Detector/monitor- aerosol
090000	Compressed air equipment	160200	Detector/monitor-air velocity
100100	Compressed air sys-air compressor	160300	Detector/monitor-calibrator
100200	Compressed air sys-receiver tank	160400	Detector/monitor-carbon monoxide sensing
100300	Compressed air sys-unfired pres vessel		
100000	Compressed air system		

**Mining Equipment Type Reference**  
**MSHA Form 7000-50a, Item 22 (Cont'd)**

Code	Description	Code	Description
160500	Detector/monitor-combustible gas	230200	Elec equip-battery
160600	Detector/monitor-flame safety lamp	230201	Elec equip-battery assembly
160700	Detector/monitor-heat detection	230202	Elec equip-battery connector
160800	Detector/monitor-humidity assembly	230300	Elec equip-circuit breaker
160900	Detector/monitor-hydrogen sulfide	230400	Elec equip-connection box
161000	Detector/monitor-level sensing	230500	Elec equip-distribution box
161100	Detector/monitor-light sensing	230600	Elec equip-enclosure
161200	Detector/monitor-methane	230601	Elec equip-enclosure assembly
161300	Detector/monitor-multiple gas	230700	Elec equip-fuse
161400	Detector/monitor-oxides of nitrogen	230800	Elec equip-generator
161500	Detector/monitor-oxygen	230900	Elec equip-ground monitoring system
161600	Detector/monitor-position sensing	231100	Elec equip-line-powered devices
161700	Detector/monitor-pressure	231200	Elec equip-monitor & power sys (MAPS)
160000	Detector/monitor-substance/position	231300	Elec equip-motor
161800	Detector/monitor-temperature	231400	Elec equip-relay
180000	Diesel eng.accessories /safety components	231401	Elec equip-relay overcurrent
170000	Diesel engine	231402	Elec equip-relay power control
190000	Dimension stone cut/polish machines	231600	Elec equip-switch (includes master)
200000	Dredge	230602	Elec equip enclosure-breaker
210000	Drill-rock	230603	Elec equip enclosure-controller
210100	Drill-rock-fixed	230604	Elec equip enclosure-emergency stop
210200	Drill-rock- hand-held	230605	Elec equip enclosure-foot switch
210300	Drill-rock-machine-mounted	230606	Elec equip enclosure-push button
740101	Dumper-rear dump	230607	Elec equip enclosure-resistor
740200	Dumper-highway	230608	Elec equip enclosure-starter
740203	Dumper-highway- bottom dump	230609	Elec equip enclosure-transformer
740201	Dumper-highway-rear dump	240100	Elec test eqp-air sampling pump
740202	Dumper-highway-side dump	240400	Elec test eqp-cable fault detector
740102	Dumper-side dump	240500	Elec test eqp-dust dosimeter
740103	Dumper bottom dump	240600	Elec test eqp-multimeter
740100	Dumper, ore haulage dump truck		
220200	Dust collection-water spray unit		
220100	Dust collection system		
220000	Dust control system		
230100	Elec equip-alternator		



**Mining Equipment Type Reference**  
**MSHA Form 7000-50a, Item 22 (Cont'd)**

Code	Description	Code	Description
241100	Elec test eqp-voltmeter	310000	Fire suppression system
240000	Elec test equipment	510400	Flame-resistant conveyor belt
240200	Elec test equipment-ammeter	510500	Flame-resistant fire hose
430100	Electric cap lamp	510600	Flame-resistant hose conduit
230000	Electrical equipment	510700	Flame-resistant permanent splice kit
250000	Elevating aerial work platform	510800	Flame-resistant trailing cable
240700	Elec test eqp-ohmmeter	560303	Flat car, timber truck, low boy
240800	Elec test eqp-rock dust analyzer	320000	Forklift
240900	Elec test eqp-tachometer	330000	Grader, motor grader (motor/road patrol)
241000	Elec test eqp-vibration/shock analyzer	340000	Grizzly
260000	Elevator	350000	Hand tools, not powered
510300	Equipment covering	360000	Handtools, powered
760000	Equipment or machine not listed	430200	Headlight
270000	Excavator	670200	Heat exchanger, process or space heater
270100	Excavator-backhoe loader	370000	Hoist
270401	Excavator-crawler or wheel mounted	370100	Hoist-Hydr-automotive/vehicle maint. only
270300	Excavator-ditching machine	370200	Hoist-material handling
270400	Excavator-dragline	560304	Hopper car or gondola
270500	Excavator-hoe, backhoe	380100	Hydraulic fluid
270600	Excavator-shovel	380200	Hydraulic hose
270700	Excavator-telescoping boom	390000	Hydraulic monitor (placer mining)
270402	Excavator-walking	380000	Hydraulic System
280100	Explosive material	400000	Impact breaker (not hand held)
280000	Explosives	511000	Insulating material-cable equipment
280101	Explosives-permissible	510900	Insulating matl for battery box cover
280102	Explosives-sheathed	231001	Intrinsically safe battery supply
280200	Explosives-stemming devices	231006	Intrinsically safe circuit barrier
280300	Explosives-storage magazines and boxes	231003	Intrinsically safe control circuit
290100	Fan-auxiliary	231008	Intrinsically safe electrical sys-valve
290200	Fan-booster or secondary		
290300	Fan-diffuser, area, or jet		
290400	Fan-main or primary		
290000	Fan-ventilation (Axial and Centrifugal)		
680101	Feeder, storage, or surge bin; hopper		
300000	Feeder-breaker (feeders w/o breakers)		
310200	Fire hose		
310100	Fire suppression sys-engineered system		

**Mining Equipment Type Reference**  
**MSHA Form 7000-50a, Item 22 (Cont'd)**

Code	Description	Code	Description
231002	Intrinsically safe load monitor	520501	Mill/Prep plant dryer-thermal
231004	Intrinsically safe output barrier	520600	Mill/Prep plant feeder
231005	Intrinsically safe power supply	520700	Mill/Prep plant filter
231007	Intrinsically safe remote receiver	520800	Mill/Prep plant flotation cell
231000	Intrinsically safe system	520900	Mill/Prep plant grinding mill
410000	Jack	521600	Mill/Prep plant separator
420000	Ladder, fixed and portable	521700	Mill/Prep plant thickener
440100	LHD- crawler loader	370300	Mine hoist (material/ personnel)
430000	Lighting-illumination equip	430500	Mine lamp or flashlight
440000	Load-haul-dump (LHD) machine	600100	Mobile roof support unit
450000	Loading mach-gathering arm/ coal loader	530000	Mucking machine, overshot type
560100	Locomotive, motor	521200	Packaging machine/ bagger/ sewing machine
460300	Longwall-chock	080600	Page phone
460200	Longwall-face conveyor	740300	Personnel carrier-self propelled vehicle
460100	Longwall-shearer (plow or cutter drum)	560305	Personnel/mantrip car-not self-propelled
460400	Longwall-shield	540200	Photo flash devices
460500	Longwall-stage loader	540000	Photographic equipment
460000	Longwall mining system	521300	Pug mill (mixing)
430300	Luminaire	550000	Pump, hydraulic power unit
470000	Machine retriever (disabled machines)	080700	Radio
490000	Machine tools (Usually fixed in place)	560000	Railroad equip (surface and underground)
480000	Machine, not elsewhere described	560700	Rails, track components, & accessories
430400	Machine-mounted lighting system	580000	Ramcar
500000	Manlift (surface installations)	580200	Ramcar-diesel
510000	Material	580100	Ramcar-electric (also battery powered)
520000	Mill and preparation plant machinery	080800	Remote control transmitter
521100	Mill Prep plant-kiln (drying)	590000	Respirator
521000	Mill Prep plant jig	610000	Rock dusting machine
521500	Mill/Prep plant-screen	600300	Rock-roof bolting machine (coal mines)
520400	Mill/Prep plant crusher	600200	Rock-roof bolting machine-noncoal mines
520500	Mill/Prep plant dryer	600000	Rock-roof support system
520502	Mill/Prep plant dryer-centrifugal	560500	RR equip-car handling system
		560600	RR equip-constr/maint/repair

**Mining Equipment Type Reference**  
**MSHA Form 7000-50a, Item 22 (Cont'd)**

Code	Description	Code	Description
570000	RR equip-raise climber (Alimak)	680000	Storage/loadout facilities (bulk solids)
560300	RR equip-rolling stock	680100	Storage/loadout facilities (storage)
560200	RR equip-powered personnel carrier	680204	Storage/loadout-reclaim/ drawoff tunl sys
620000	Scaffolding, fixed or powered	700000	Surveying equipment
521400	Scaling/measuring devices (incl nuclear)	700100	Surveying equipment- borehole probe
630000	Shortwall machine	700200	Surveyor equipment-laser
640000	Shuttle car	700300	Surveyor equipment-strata inspection
640200	Shuttle car-diesel	560306	Tank car
640100	Shuttle car-electric	081000	Telephone
511100	Signal cable	710000	Tractor-not frnt end loadr or backhoe
680102	Silo	710200	Tractor-wheel
680103	Skip pocket/skip loading/ measuring bin	720000	Tractor-scraper (pan scraper)
650000	Slusher	740400	Truck, explosive material loading
231500	Solenoid actuator (solenoid valve)	740500	Truck, service or utility
080900	Sound (voice) amplifier	730000	Tunnel Boring Machine (full face type)
660200	Sound level calibrator	560307	Utility car (crane, cable reel, caboose)
660300	Sound level meter	740000	Vehicle, rubber tired
660000	Sound measurement equipment	511200	Ventilation tubing
430600	Stand-alone area lighting system	521800	Washer (log washer)
670000	Steam power system	750000	Welding machine, welding equipment
670100	Steam power system-boiler	440204	Wheel/front end
670300	Steam power system-piping		
670400	Steam/hot water high pressure cleaner		
680104	Stockpile		
690000	Storage tank		
690100	Storage tank-compressed gas		
690200	Storage tank-flammable/ Combustible liq		
690300	Storage tank-water		
690400	Storage tank other-(process chemicals)		
680201	Storage/loadout-hydraulic system		
680202	Storage/loadout-loading chute		
680200	Storage/loadout-loading- discharge		
680203	Storage/loadout-pneumatic system		

## NOTES

**Equipment Manufacturer Reference**  
**MSHA Form 7000-50a, Item 22(b)**

Code	Description	Code	Description
0118	A.M. General Corporation	0224	Bombardier, Ltd.
0101	Abex	0225	Bowdill Co.
0102	Acker (Minpro)	0226	Boxmag Rapid
0103	Acme	0227	Bridgestone
0104	Adams	0228	Broderson
0105	Advance Mining Aerodyne	0229	Bros
0106	Akerman HW	0221	Browning
0107	AKW	0231	Bucyrus-Erie (BE)
0108	Allen-Sherman-Hoff	0233	Buffalo Forge Company
0109	Allis-Chalmers (AC) [Fiat-Allis]	0232	Buffalo-American
0110	Alpine (Oesterreichisch-Alpine	0234	Buffalo-Springfield
0111	AMCA	0235	Bunker Hill Co.
0113	American Hoist and Derrick Co.	0236	Burlington (elevator)
0114	American Isuzu Motors, Inc.	0324	C-I-L, Inc.
0115	American Longwall	0301	Cable Belt
0116	American Motors	0302	Calweld-Div of Smith Intern't Inc
0117	American Poclain	0303	Campbell (elevator)
0119	Anderson Mavor, Inc.	0304	Canton (elevator)
0120	Anderson Strathclyde	0305	Capitol (elevator)
0121	Apache Powder Co.	0306	Carco Winch Products
0122	Armor (elevator)	0307	Carver
0123	Armstrong Rubber Co.	0308	Case
0124	ASEA Inc.	0310	Caterpillar
1118	Athley Products	0312	Ceder, Martin A. (elevator)
0125	Atlas (elevator)	0319	CH&E
0126	Atlas Copco	0315	Champ
0128	Austin Powder Co.	0316	Champion
0325	Austin-Western	0317	Champion Road Machinery Co.
0130	Autocar	0318	Chance, AB [Pitman Mfg. Co.]
0201	Badger (Ronco)	0320	Chevrolet
0202	Badger Construction Equipment Co	0321	Chicago Blower Corp.
0203	Badger Dynamics [TCI Power Products]	0322	Chicago Pneumatic
0204	Baker	0323	Chrysler Corp.
0205	Balderson	0333	Cleveland Trencher
0206	Baldwin-Lima-Hamilton	0334	Cline (Cline Truck Mfg Corp)[T&J Ind]
0208	Barber-Greene [TelSmith Div.]	0335	Clyde Iron Works, Inc.
0209	Bay City	0336	CMC [Construction Machinery Co.]
0210	Bay State (elevator)	0337	Coeur d'Alenes Co.
0211	Beckwith (elevator)	0338	Colt Industries [Quincy]
0212	Beebe Brothers, Inc.	0339	Compair
0213	Bell Equipment USA Inc., I.A.	0340	Connellsville Corp. (elevator)
0214	Benati	0341	Consolidated (elevator)
0215	Bertram (John) and Sons Co.	0342	Continental (elevator)
0216	Betti	0344	Continental Products Corp. (tires)
0218	Birdsboro	0345	Cooper Tire & Rubber Co.
0219	Black & Decker	0346	Crane Carrier Co.
0220	Blaw-Knox		

**Equipment Manufacturer Reference Table**  
**MSHA Form 7000-50a, Item No. 22(b) (Cont'd)**

Code	Description	Code	Description
0347	Cummins	0516	Emery (elevator)
0348	Cushman	0517	Ensign
0401	Daimler-Benz (Unimog)	0518	Ensign-Bickford Company, The
0403	Davey	0519	Envirotech Corporation
0406	Demag Corp.	0520	Epling
0407	Denver Engrng Works, Denver Iron Works	0521	Equipment Corporation of America
0408	Detroit (elevator)	0522	Erie-Strayer
0409	Detroit Diesel Corp.	0523	Eriez
0410	Detroit-Kiesler	0524	Ersham (elevator)
0411	Deutz	0525	Esco (elevator)
0412	Dillon Box Iron Works	0526	Essick
0413	Dings	0527	Euclid (Euc)
0414	Ditch Witch	0528	Explosives Technology International-ETI
0415	Dixie Dredge	2800	Fabricated at mine
0416	DJB	0601	Fairchild
0417	Dodge	0604	Ferrari
0419	Dorr-Oliver	0606	Firestone Tire & Rubber Co.
0420	Dosco	0607	Fletcher
0421	Dover Conveyor and Equipment (Dover)	0608	Flygt
0422	Dowty Meco	0609	FMC Corp. (Sweeper Div.)
0423	Dravo	0611	Foot Brothers
0424	Dredgemaster	0612	Ford (Ford Motor Co.)
0426	Drilco [Smith International]	0613	Ford New Holland (wheel tractors)
0427	Driltech	0614	Fox
0428	Drott Excavators	0615	Franklin
0429	Drott-Case	0616	Freightliner
0430	Dunlop Tire Corp.	0618	Fuller
0431	DuPont de Nemours & Co., E.I. [ETI]	0617	Furukawa
0432	Dynahoe	0619	FWD Wagner
0434	Dynapac	0719	G.H.H. Sterkade
0501	Eastern (elevator)	0701	Galigher
0503	Eaton Yale&Towne (Const Eqp Dv) (Trojan)	0703	Galion (elevator)
0502	Eaton, Yale [Timberjack]	0705	Galis
0504	Eberius (elevator)	0702	Gallagher (elevator)
0505	Economy Engineering	0706	Gardner-Denver
0506	Eickhoff Corp.	0708	Gates Rubber Co.
0508	Eimco	0709	GATX-Fuller (Traylor)
0509	El Dorado	0710	Gebhard [Shovel Supply]
0511	El-Jay, Inc.	0711	General Electric Co.
0510	Elgood Mayo Corp.	0712	General Electric Co. of Canada
0512	Elkhorn Industrial Products	0713	General Engines
0513	Ellicott	0716	General Tire & Rubber Co.
0514	Emaco	0717	Gerlinger
0515	Emco (elevator)	0718	Getman
		0720	Glock
		0722	Goex, Inc. [GOEX International]
		0723	Goodall Rubber Co.

**Equipment Manufacturer Reference**  
**MSHA Form 7000-50a, Item 22(b) (Cont'd)**

Code	Description	Code	Description
0724	Goodman	0905	Ingram
0217	Goodrich, B.F.	0906	Insley Mfg.
0726	Goodyear Tire & Rubber Co.	1111	Klockner-Becorit
0727	Gorman-Rupp	1112	Kobelco
0728	Gould (battery)	1113	Kobota
0729	Grace	1114	Koehler Manufacturing Co.
0730	Gradall	1117	Kolberg Manufacturing
0731	Grimmer-Schmidt	1119	Komatsu
0732	Grove Manufacturing	1120	Kone
0733	Gruendler	1122	Krebs
0734	Grundlach (coal crusher)	1123	Kress (Kress Corp.)
0735	Gullick Dobson Ltd.	1124	Krupp
0801	Hankook Belt	1125	Kubota
0802	Hanson	1201	Lagerquist (Gust.) and Sons (elevator)
0803	Hardy-Tynes Manufacturing Co.	1202	Lakeshore, Inc.
0804	Harnischfeger	1203	Lambert National Hoist
0805	Hartenstein (elevator)	1204	Lardner (elevator)
0806	Hartzell Fan, Inc.	1205	Lear
0807	Haughton (elevator)	1208	Lee Tire & Rubber Co.
0809	Hawker Siddeley	1207	Lee-Norse Co.
0810	Hazemag	0909	Iowa Manufacturing [Cedar Rapids]
0811	Hein-Werner Corp.	0910	Iowa Mold Tooling Co. Inc.
0812	Heintzmann Corp.	0912	ISCO Manufacturing Company, Inc.
0813	Hemscheidt America Corp.	0913	Isuzu
0814	Hendrie Bolthoff	0902	ITT [Marlow]
0815	Hendrix	0914	Iveco
0816	Hepburn	1308	J.I. Case Co.
0911	Hercules Tire & Rubber Co.	1002	Jaeger
1221	Hewitt-Robins	1001	Jarvis Clark Inc.
0823	Hino	1003	JCB, Inc.
0821	Hitachi	1004	JCI (John Clark Inc.)
0822	HME	1006	Jeffrey-Dresser
0824	Hobart	0715	Jimmy [General Motors Corp.]
0825	Hoechst	1009	JLG Industries, Inc.
0827	Honda	1010	John Deere
0829	Horner (elevator)	1011	Jold
0831	Huber Corporation	1012	Joshua Hendy Iron Works
0832	Hughes Aircraft Co.	1013	Joy Machinery Co. (Joy Manufacturing Co)
0833	Hummer	1101	Kato
0834	Humphreys	1102	Kawasaki
0835	Huwood-Irwin Corporation	1103	Kellogg-American [Holman]
0836	Hydra-Mac, Inc.	1104	Kelly-Springfield Tire Co.
0838	Hyster	1105	Kent
0127	ICI	1106	Kenworth
0903	Independent Explosives Co. of Pa.	1107	Kersey Manufacturing Co.
0904	Ingersoll-Rand Co.		

**Equipment Manufacturer Reference**  
**MSHA Form 7000-50a, Item 22(b) (Cont'd)**

Code	Description	Code	Description
1108	KHD Humboldt Wedag	1402	National Crane
1109	Kieckhefer, A. (elevator)	1403	National Iron
1110	Klein	1404	National Mine Service
1211	Liebherr	1405	Navistar
1213	Linatex	1406	Nelson Brothers
1214	Lincoln	1407	New Holland
1215	Linden-Alimak	1408	Nissan
1216	Lindsay	1410	Nitro Nobel Mec
1217	Line Power	1409	Nitrochem Energy Corporation
1220	Little Giant Crane & Shovel	1411	Nolan
1222	Long-Airbox	1413	Northern Industrial Sales & Serv Inc.
1223	Longyear	1414	Northwest
1314	M-B Company, Inc.	1415	Northwestern (elevator)
1336	M-R-S Manufacturing Company	3000	Not listed
1303	M.A.N. GHH Sterkrade	0000	Not Reported
1301	Mack	1501	O & K (Orenstein & Koppel)
1302	Manitowoc	1502	O & K Trojan (wheel loaders)
0425	Marion [Dresser]	1505	O'Keefe (elevator)
1306	Mark Industries (Marklift)	1503	Ohio Brass
1310	Marshall (elevator)	1504	Ohio Hoist Mfg. Co.
1311	Massey-Ferguson	1506	Oshkosh
1313	Mazda Motors	1507	Otis Elevator Co. (United Technologies)
1315	McLanahan	1508	Ottumwa Iron Works
1316	McLauthlin, Geo. T. (elevator)	1509	Outokumpu
1317	MDI/Yutani	1510	Owen Oil Tools
0222	Melroe (Bobcat)	1511	Owens
1319	Mercedes-Benz	0313	P&H (Harnischfeger)
1320	Mescher	1603	Pacific (elevator)
1321	Michelin Tire Corp.	1604	Pacific Car
1323	Miller	1605	Page
1324	Mine Equipment Co.	1606	Payhauler (Payhauler Corp.)
1325	Mining Progress, Inc.	1907	S & S
1326	Mining Services International	1901	Sala
1328	Mitsubishi Corporation	1902	Salem (McCarthy)
1210	Mixermobile [Wabco (Scoopmobile)]	1903	Samsung Construction Equipment Company
0112	Mobile Crane Dv (Amhoist) Am.Crane Corp	1905	San Francisco (elevator)
1331	Mobile Drill	1609	Payne, F.S. (elevator)
1332	Mohawk Tire & Rubber Co.	1612	PEMCO
1333	Montgomery Elevator	1613	Penndrill
1327	Motec [Minneapolis-Moline]	1614	Pennsylvania Crusher
1335	Moxy (off-highway trucks)	1615	Perkins
1337	MSI	1616	Peterbilt
1338	Mud Cat	1617	Petito
1339	Murphy (elevator)	1618	Pettibone Corp.
1340	MVD	1619	PHB Weserhutte
1341	Myers-Whaley		
1401	Nagle		



**Equipment Manufacturer Reference**  
**MSHA Form 7000-50a, Item 22(b) (Cont'd)**

Code	Description	Code	Description
1620	Pioneer	2004	Tamrock Inc.
1621	Pirelli Tire Corp.	2005	Taylor (elevator)
1623	Plymouth	2007	TCM
0309	Poclain [Case-Drott Div.]	2008	Teledyne
1701	Quickway	2010	Terex
1817	R O Corporation	2012	Timberjack
1802	Raygo	2013	Timberland Equipment Co.
1804	Reed Tool Co.	2014	TLT-Babcock, Inc.
1803	Reedrig, Inc.	2016	Towmotor
1805	REI	2017	Toyo
1806	Remington	2018	Toyo Tire (U.S.A.) Corp.
1807	Research Energy of Ohio	2019	Toyota
0314	Rex Chainbelt [Rexworks, Inc.]	1209	Tractomotive [Allis-Chalmers]
1412	Rexnord, Inc. (Nordberg)	2024	Trojan Corporation (explosives)
1811	Richard Mozley	2025	Tyler
1812	Richmond	2110	U.S. Elevator
1914	Scott ATO	2101	UD Trucks
1916	Sedgwick Machine Works (elevator)	2102	Unidynamics (elevator)
1917	Senex Explosives	2104	Uniroyal Tire Co.
1918	Shelby Manufacturing Co.	2105	Unit
1919	Sierra Chemical Corporation	2108	Unit Rig Equipment Co. (Electrahaul)
1121	Silent Hoist & Crane	2107	United Tire & Rubber Co., Ltd. (Canada)
1921	Simmons-Rand	2109	Universal
1922	Sioux	2201	Valley (elevator)
1923	Skega	2202	VCON-Vehicle Constr-Dv Peerless Mfg Co
1924	Slurry Explosive	2205	Vermeer Manufacturing Company
1926	Sound (elevator)	2203	Viking Explosives
1927	Southeastern (elevator)	2204	Viola Industrie (elevator)
1928	Southern Explosives Corporation	2208	Voest Alpine
1929	Southwest Construction Equipment Co.	2209	Volkswagen
1930	Speicher	2210	Volvo
1931	Stacy	2211	Volvo GM
1932	Stamler	2213	Vulcan Iron Works
1933	Stanley (elevator)	2212	Vulcan-Denver Corp.
1934	Steiger Tractor Inc.	2302	W.A. Box
1935	Stephens-Adamson	2303	Wagner
1936	Stewart-Warner [Thor]	2304	Walter
1937	Stow Manufacturing	2305	Warner (elevator)
1938	Street Brothers Machine Works	2309	Washington Iron Works
1939	Sullair Corporation	2311	Wellman-Seaver-Morgan
1940	Sullivan	2312	Wemco
1942	Superior Lidgerwood Mundy	2313	Western (elevator)
1943	Symons	2314	Western Star
1944	Syntron	2315	Westfalia
2001	Tadano Ltd.	2316	Westinghouse (Canadian Westinghouse)
2002	Takeuchi		
2003	Tampo		

**Equipment Manufacturer Reference**  
**MSHA Form 7000-50a, Item 22(b) (Cont'd)**

Code	Description
2317	Westinghouse Electric Co.
2318	White
0817	White Engines, Inc.
2320	White-Oliver
2321	Wilcox
2322	Wilfley
2323	Winter-Weiss
2324	Wirth
2325	Wiseda Ltd.
2316	Worthington
2327	Wultex machne co., Ltd.
2400	X
2502	Yokohama Tire corp.
2600	Z

MINE SAFETY AND HEALTH ACCIDENT/ILLNESS INVESTIGATION HANDBOOK

NOTES

**District Reference**  
**MSHA Form 7000-50a, Item 29**

<b>Code</b>	<b>Description</b>
*	ALL Districts
*C	ALL Coal
*M	ALL MNM
C0100	Wilkes-Barre
C0200	New Stanton
C0300	Morgantown
C0400	Mt. Hope
C0500	Norton
C0600	Pikeville
C0700	Barbourville
C0800	Vincennes
C0900	Denver
C1000	Madisonville
C1100	Birmingham
M2000	Northeastern
M3000	Southeastern
M4000	North Central
M5000	South Central
M6000	Rocky Mountain
M7000	Western

## NOTES

**Organization Reference**  
**MSHA Form 7000-50a, Item 30**

Code	Field Office	District
C0101	Wilkes-Barre, PA	Wilkes-Barre
C0102	Pottsville, PA	Wilkes-Barre
C0103	Shamokin, PA	Wilkes-Barre
C0201	Ruff Creek, PA	New Stanton
C0202	Kittanning, PA	New Stanton
C0204	Johnstown, PA	New Stanton
C0205	Indiana, PA	New Stanton
C0206	Clearfield, PA	New Stanton
C0207	Carrolltown, PA	New Stanton
C0301	Morgantown, WV	Morgantown
C0302	Fairmont, WV	Morgantown
C0303	Clarksburg, WV	Morgantown
C0304	Oakland, MD	Morgantown
C0305	St. Clairsville, OH	Morgantown
C0308	Wellston, OH	Morgantown
C0401	Mt. Hope, WV	Mt. Hope
C0402	Mt. Carbon, WV	Mt. Hope
C0403	Summersville, WV	Mt. Hope
C0404	Princeton, WV	Mt. Hope
C0405	Pineville, WV	Mt. Hope
C0406	Madison, WV	Mt. Hope
C0407	Logan, WV	Mt. Hope
C0501	Norton, VA	Norton
C0502	Richlands, VA	Norton
C0503	Grundy, VA	Norton
C0601	Pikeville, KY	Pikeville
C0602	Elkhorn City, KY	Pikeville
C0603	Phelps, KY	Pikeville
C0605	Martin, KY	Pikeville
C0606	Whitesburg, KY	Pikeville
C0701	Barbourville, KY	Barbourville
C0702	Harlan, KY	Barbourville
C0703	Jacksboro, TN	Barbourville
C0704	Hazard, KY	Barbourville
C0705	Hindman, KY	Barbourville

**Organization Reference**  
**MSHA Form 7000-50a, Item 30 (Cont'd)**

Code	Field Office	District
C0706	Hyden, KY	Barbourville
C0707	Jasper, TN	Barbourville
C0801	Vincennes, IN	Vincennes
C0802	Benton, IL	Vincennes
C0803	Hillsboro, IL	Vincennes
C0804	Sparta, IL	Vincennes
C0901	McAlester, OK	Denver
C0902	Trinidad, CO	Denver
C0903	Sheridan, WY	Denver
C0904	Gillette, WY	Denver
C0905	Price, UT	Denver
C0906	Craig, CO	Denver
C0907	Delta, CO	Denver
C0908	Castle Dale, UT	Denver
C1001	Madisonville, KY	Madisonville
C1002	Morganfield, KY	Madisonville
C1003	Beaver Dam, KY	Madisonville
C1101	Hueytown, AL	Birmingham
C1102	Jasper, AL	Birmingham
M2621	Wyomissing, PA	Northeastern
M2641	Charlottesville, VA	Northeastern
M2681	Warrendale, PA	Northeastern
M2851	Geneva, NY	Northeastern
M2861	Manchester, NH	Northeastern
M2881	Albany, NY	Northeastern
M3611	Bartow, FL	Southeastern
M3631	Macon, GA	Southeastern
M3651	San Juan, PR	Southeastern
M3661	Birmingham, AL	Southeastern
M3811	Franklin, TN	Southeastern
M3821	Lexington, KY	Southeastern
M3851	Columbia, SC	Southeastern
M3861	Knoxville, TN	Southeastern
M3871	Sanford, NC	Southeastern
M4631	Lansing, MI	North Central
M4641	Marquette, MI	North Central

**Organization Reference**  
**MSHA Form 7000-50a, Item 30 (Cont'd)**

Code	Field Office	District
M4661	Hibbing, MN	North Central
M4671	Ft. Dodge, IA	North Central
M4821	Peru, IL	North Central
M4851	Newark, OH	North Central
M4861	Vincennes, IN	North Central
M5611	San Antonio, TX	South Central
M5631	Carlsbad, NM	South Central
M5641	Albuquerque, NM	South Central
M5651	Denham Springs, LA	South Central
M5671	Dallas, TX	South Central
M5851	Rolla, MO	South Central
M5861	Norman, OK	South Central
M5871	Little Rock, AR	South Central
M6621	Rapid City, SD	Rocky Mountain
M6642	Denver, CO	Rocky Mountain
M6651	Topeka, KS	Rocky Mountain
M6821	Helena, MT	Rocky Mountain
M6831	Green River, WY	Rocky Mountain
M6851	Salt Lake City, UT	Rocky Mountain
M6861	Mesa, AZ	Rocky Mountain
M6841	Boulder City, NV	Rocky Mountain
M6871	Elko, NV	Rocky Montain
M7621	Coeur D'Alene, ID	Western
M7641	Bellvue, WA	Western
M7651	Albany, OR	Western
M7821	Vacaville, CA	Western
M7831	Redlands, CA	Western



## NOTES

## MINE SAFETY AND HEALTH ACCIDENT/ILLNESS INVESTIGATION HANDBOOK

Appendix 14

## Accident Investigation Data-Victim Information, MSHA Form 7000-50b

## Accident Investigation Data - Victim Information

## U.S. Department of Labor

Event Number: | | | | | | | |

Mine Safety and Health Administration

Victim Information: 1													
1. Name of Injured/III Employee:			2. Sex:	3. Victim's Age:		4. Last Four Digits Of SSN:			5. Degree of Injury				
6. Date(MM/DD/YY) and Time (24 Hr.) Of Death:						7. Date and Time Started:							
a. Date:						b. Time:		a. Date:				b. Time:	
8. Regular Job Title:						9. Work Activity when Injured:				10. Was this work activity part of regular job?			
										Yes   No			
11. Experience		Years	Weeks	Days	Years		Weeks	Days	Years		Weeks	Days	
a. This Work Activity:					b. Regular Job Title:				c. This Mine:				
12. What Directly Inflicted Injury or Illness?						13. Nature of Injury or Illness:							
14. Training Deficiencies:													
Hazard:           New/Newly-Employed Experienced Miner:           Annual:           Task:													
15. Company of Employment: (If different from production operator)           Independent Contractor ID: (if applicable)													
16. On-site Emergency Medical Treatment:													
Not Applicable:           First-Aid:           CPR:           EMT:           Medical Professional:           None:													
17. Part 50 Document Control Number: (form 7000-1)           18. Union Affiliation of Victim:													
Victim Information: 2													
1. Name of Injured/III Employee:			2. Sex:	3. Victim's Age:		4. Last Four Digits Of SSN:			5. Degree of Injury				
6. Date(MM/DD/YY) and Time (24 Hr.) Of Death:						7. Date and Time Started:							
a. Date:						b. Time:		a. Date:				b. Time:	
8. Regular Job Title:						9. Work Activity when Injured:				10. Was this work activity part of regular job?			
										Yes   No			
11. Experience		Years	Weeks	Days	Years		Weeks	Days	Years		Weeks	Days	
a. This Work Activity:					b. Regular Job Title:				c. This Mine:				
12. What Directly Inflicted Injury or Illness?						13. Nature of Injury or Illness:							
14. Training Deficiencies:													
Hazard:           New/Newly-Employed Experienced Miner:           Annual:           Task:													
15. Company of Employment: (If different from production operator)           Independent Contractor ID: (if applicable)													
16. On-site Emergency Medical Treatment:													
Not Applicable:           First-Aid:           CPR:           EMT:           Medical Professional:           None:													
17. Part 50 Document Control Number: (form 7000-1)           18. Union Affiliation of Victim:													
Victim Information: 3													
1. Name of Injured/III Employee:			2. Se	3. Victim's Age:		4. Last Four Digits Of SSN:			5. Degree of Injury				
6. Date(MM/DD/YY) and Time(24 Hr.) Of Death:						7. Date and Time Starte							
a. Date:						b. Time:		a. Date:				b. Time:	
8. Regular Job Title:						9. Work Activity when Injured:				10. Was this work activity part of regular job?			
										Yes   No			
11. Experience:		Years	Weeks	Days	Years		Weeks	Days	Years		Weeks	Days	
a. This Work Activity:					b. Regular Job Title:				c. This Mine:				
12. What Directly Inflicted Injury or Illness?						13. Nature of Injury or Illness							
14. Training Deficiencies:													
Hazard:           New/Newly-Employed Experienced Miner:           Annual:           Task:													
15. Company of Employment:(If different from production operator)           Independent Contractor ID: (if applicable)													
16. On-site Emergency Medical Treatment:													
Not Applicable:           First-Aid:           CPR:           EMT:           Medical Professional:           None:													
17. Part 50 Document Control Number: (form 7000-1)           18. Union Affiliation of Victim:													

## NOTES

**MINE SAFETY AND HEALTH ACCIDENT/ILLNESS INVESTIGATION HANDBOOK**

**MSHA Form 7000-50b Codes**

Appendices 15-19 contain the codes to be used with the Accident Investigation Database Victim Information Form 7000-50b.

## NOTES

**Degree of Injury Reference**  
**MSHA Form 7000-50b, Item 5**

Code	Description
01	Fatal
02	Permanent total or partial disability
03	Days away from work only
04	Days away from work & days restrict acty
05	Days of restricted work activity only
06	No days away from work, no restrict acty
07	Occ Illnesses not classified 01 - 06
08	Fatal & NF, natural causes, cmp business
09	Fatal & NF, non-empl, on or off property

## NOTES

**Job Title Reference**  
**MSHA Form 7000-50b, Item 8**

Note: There are two codes for many occupations. Those starting with a zero (0) are underground jobs and those starting with a one (1) are surface jobs.

Code	Description	Code	Description
132	Aerial tram/hand tram	035	Continuous miner helper
171	Auger helper	036	Continuous miner operator
071	Auger helper	178	Crane oper.
070	Auger operator	181	Crusher/pan operator/attendant
170	Auger operator	081	Crusher/pan opr/attendant/ feeder breaker
017	Auger(timber/jacksetter left side)	037	Cutting machine helper
018	Auger(timber/jacksetter right side)	038	Cutting machine operator
173	Backhoe operator	085	Diesel shuttle car
142	Bagging/packaging oper./Worker	065	Dispatcher
136	Ball/rod/pebble mill oper./Worker	165	Dispatcher
172	Barge att/boat oper/dredge oper.	161	Dragline operator
031	Battery charging station/fan attendant	058	Drift miner
131	Battery station oper./Fan attendant	133	Drill helper/chuck tender
101	Belt man/conveyor crew/ vulcanizer	033	Drill helper/chuck tender
001	Belt/conveyor man/crew	134	Drill operator(coal/wagon/ diamond)
025	Bobcat	034	Drill operator(coal/wagon/ diamond)
125	Bobcat operator	183	Driver jeep/pickup
079	Boring mach opr(rock) raise borer mnr opr	083	Driver/jeep/pickup
154	Brake man/rope rider/car dropper	179	Dryer/kiln oper/worker
054	Brake man/rope rider/car dropper	102	Electrician/helper/wireman
168	Bulldozer/tractor oper.	002	Electrician/helper/wireman
068	Bulldozer/tractor operator	092	Engineer(elect/vent/mining)
126	Car dump/rotary dump/shake-out opr/helpr	192	Engineer(elect/vent/mining)
026	Car dump/shake-out/roscoe/ loaderhead opr	180	Fine coal plant operator
115	Cement man/mason/brick layer	140	Flotation/concentrator oper./ Worker
015	Cement/concrete man/mason	166	Forklift
160	Clam shell operator	066	Forklift operator
013	Cleanup man	182	Front-end loader/high lift operator
113	Cleanup man	082	Front-end-loader operator
187	Coal-M/NM sampler/dust sampler/lab tech	075	Grader operator
087	Coal-M/NM sampler/technician/ dust samplr	175	Grader/road roller operator
		122	Grizzlyman/chute puller/binman
		022	Grizzlyman/chute puller/binman
		159	Ground person/spotter
		137	Hammer mill oper./Worker
		039	Hand loader
		139	Hand loader
		032	Hand trammer
		040	Headgate operator
		184	Highwall drill oper/helper



**Job Title Reference**  
**MSHA Form 7000-50b, Item 8 (Cont'd)**

Code	Description	Code	Description
103	Hoistman/hoist engineer/helper	141	Pelletizing oper./Worker
003	Hoistman/hoist engineer/helper	194	Plumber/carpenter/painter
143	Hydrating plant oper/worker	011	Pumper
095	Inspector/fire boss/preshift exam.	111	Pumper
195	Inspector/fire boss/preshifter	059	Raise miner
		006	Rock duster
027	Jack-leg/stoper oper./Rock driller	045	Rockman/hangup man/chute blaster
127	Jack-leg/stopper/rock driller	046	Roof bolter (single head)
151	Jackhammer/chipping hammer/spade oper	047	Roof bolter helper (single head)
051	Jackhammer/chipping hammer/spade oper.	048	Roof bolter mounted (left side)
188	Jet piercing channel/drill oper./Helper	019	Roof bolter mounted(right side)
088	Jet piercing channel/drill oper./Worker	014	Roof bolter(twinhead left side)
116	Laborer/utility man/bull gang	012	Roof bolter(twinhead right side)
016	Laborer/utilityman/bull gang	174	Rotary drill oper.(Hyd./Elect/churn)
185	Lampman/building repair/maint/janitor	074	Rotary drill oper.(Hydraulic/elect/churn)
135	Leaching operations worker	056	Rotary/jumbo drill oper. (Pneumatic)
042	Loading machine helper	156	Rotary/jumbo drill oper. (Pneumatic)
043	Loading machine/gathering arm loader opr	186	Rotary bucket excavator operator
060	Longwall face worker (return side)	084	Sand filler(wet/dry)
041	Longwall jacksetter/snaker/helper	077	Scaler (hand)
044	Longwall operator (tailgate side)	078	Scaler (mech.)
064	Longwall operator(headgate side)	144	Scalper/screen/sizing/tipple plant workr
061	Longwall worker (return side fixed pos)	028	Scoop car/tram/load haul dump operator
004	Mechanic/repairman/helper	128	Scoop car/tram/load-haul-dump opr.
104	Mechanic/repairman/helper	080	Shaft miner/shaft repairer
163	Miner NEC/Surface miner	062	Shopman/millwright/machinist/bit sharpener
063	Miner NEC/Ug miner	162	Shopman/millwright/machinist/bit sharpener
072	Mobile bridge operator	107	Shotfirer/blaster/shooter/helper
069	Motorman/swamper/snapper/switchman	007	Shotfirer/shooter/blaster/helper
169	Motorman/swamper/snapper/switchman	167	Shovel oper.(Stripping/loading)
029	Mucking machine operator	067	Shovel operator
105	Oiler/greaser	073	Shuttle car (off standard)
005	Oiler/greaser	050	Shuttle car/ram operator (standard side)
177	Overhead crane oper	150	Shuttle/ram car operator
164	Pan scraper operator		

**Job Title Reference**  
**MSHA Form 7000-50b, Item 8 (Cont'd)**

Code	Description	Code	Description
190	Silo/train load out operator	094	Waterline man,plumber,
145	Sizing/washing/cleaning plant		carpenter/painter
	opr/worker	193	Weighman/scaleman/timekeeper/
023	Skip tinder/top loader/cager/		clerk
	station att	021	Welder
123	Skiptender/dumper/cager/station	121	Welder/blacksmith
	att.	197	Yard engine engineer/fireman
189	Slurry/mixing/pumping operation		
	worker		
089	Slurry/mixing/pumping operation		
	worker		
130	Slusher operator		
030	Slusher operator		
110	Steel setter/worker		
198	Stone finishing/sizing personnel		
057	Stope miner		
049	Supervisory/management/foreman/		
	boss		
149	Supervisory/management/foreman/		
	boss		
009	Supplier/warehouse man/supply		
	driver		
109	Supplyman/warehouseman/supply		
	driver		
020	Survey crew		
120	Survey crew		
157	Sweeper/compactor operator		
052	Tailgate operator		
010	Timberman/propman/steel setr/		
	steelworker		
053	Track man/track gang/tamping		
	mach. Oper		
153	Trackman/track gang/tamping		
	mach oper		
124	Trainee		
076	Truck driver		
176	Truck driver		
091	Union official/safety rep.		
191	Union official/safety rep.		
199	Unknown or NEC		
099	Unknown or NEC		
008	Vent man/crew/stop blder/		
	brattice man		
196	Watchman/guard		
129	Water attendant		

## NOTES

**Activity Reference**  
**MSHA Form 7000-50b, Item 9**

Code	Description		
001	Accident recovery	036	Inspect equipment-Not maintenance/repair
002	Advance longwall roof support	037	Investig/enter/work in bins/tanks/storage
006	Bar down face, rib or side, roof or back	038	Lay/repair railroad track/roadbed/equip
009	Bathing; changing clothes, etc.	039	Machine maintenance/repair
003	Blasting; shoot coal	040	Move power cable-includes reeling cable
004	Blow gun, airlance at all locations	041	Moving equipment
005	Brush floor	064	Mucking machine
007	Caging; operate elevator, manlift	042	Observe operations
008	Cement work; gunite crew, etc.	043	Office and laboratory work.
010	Chute, pull or free-using a bar	046	Operate (work on) barge, boat, dredge
011	Clean up	045	Operate auger (underground mines)
014	Climb in piled matl/ore/rock/timber/ston	044	Operate auger - surface
012	Climb in raise/shaft/manway	047	Operate bulldozer
013	Climb scaffolds/ladders/platforms/towers	051	Operate coal/ore cutting machine
015	Couple/uncouple mine car/tractor/jeep	050	Operate conveyor belt (not riding)
016	Crawling/kneeling	052	Operate fork lift
017	Cross over (conveyor)	053	Operate front-end loader
018	Double jack	054	Operate grader
019	Drill face/rib/side/down/raise	055	Operate haulage truck (surface & ug)
020	Electrical maintenance/repair	056	Operate hoist
021	Environmental tests/checks	057	Operate jitney
022	Escaping a hazard	058	Operate load-haul-dump
023	Get on or off equipment/machines	059	Operate loading machine
024	Grinding (bits, steel, welds, etc.)	060	Operate locomotive (air trammer)
025	Hand load; hand shoveling/mucking	061	Operate longwall/shear/plow (longwall)
030	Hand tools (Not powered)	063	Operate mill equipment
031	Hand tools (Powered)	065	Operate power shovel/dragline/backhoe
026	Handling coal, rock waste, or ore	066	Operate rock dust machine
027	Handling explosives	067	Operate scraper (rig); cans, etc.
028	Handling supplies/material; load/unload	068	Operate shortwall-underground shortwall
029	Handling timber - booming a cap	069	Operate shuttle car
032	Hang/reposition tubing/pipe/rope/wire	070	Operate slusher
033	Horseplay	072	Operate surface equipment, NEC.
034	Idle time plant/equipment down time	073	Operate underground equipment, NEC.
035	Impactor (Using impactor)	071	Operate utility truck
Code	Description		

**Activity Reference**  
**MSHA Form 7000-50b, Item 9 (Cont'd)**

Code	Description
062	Operate/ride in/ride on mantrip
098	Other, NEC
049	Operate continuous miner
074	Remove/position hydr jack (not longwall)
075	Rerail equip (incl replace trolley pole)
076	Ride/not operate equip-except mantrip
077	Roof bolter, drilling
078	Roof bolter, inserting bolt
080	Roof bolter, NEC
079	Roof bolter, tramming
081	Sand fill (backfilling stopes)
082	Set brattice
083	Set/remove/relocate props
084	Skip pocket (pull/free)
085	Spot cars; drop cars
086	Sprag/block/chock mine cars/track equip
087	Supervise (not simply observe operation)
088	Surface construction, NEC
089	Timbering (include lagging and cribbing)
090	Travel (to/from work locatn-not mantrip)
099	Unknown
091	Ventilation (maintenance/installation)
092	Walking/running
093	Welding&cutting-incl electric/acetylene
094	Wet down working place (using water)
048	Work in coal tipple/crusher/clean plant
096	Working w chemicals-caustics/acids/lime
095	Working w/ solvents (cleaners/degreasers)
097	Working with noxious materials, NEC

**MINE SAFETY AND HEALTH ACCIDENT/ILLNESS INVESTIGATION HANDBOOK**

**Source of Injury or Illness Reference  
MSHA Form 7000-50b, Item 12**

<b>Code</b>	<b>Description</b>		
021	Acids and alkalies	054	Drill, rotary (coal drill)
064	Air hoist	080	Drum/pulley/sheave-not convyr/ shive blk
026	Apparel, N.E.C. - Ring, eyeglasses	042	Elec conductor/wire/cable/trolley pole
046	Axe, hammer, sledge, doublejack, maul	043	Electrical apparatus, NEC
121	Back mine roof, hanging wall	063	Elevators, cages, skips, hoists
004	Bags, sacks (Rock dust only when in bag)	044	Explosives (rel directly to explosives)
005	Barrels, kegs, drums	070	Fixed ladder-incl in shaft/ manway/raise
035	Belt conveyors/mobile bridge conveyor	045	Flame, Fire, Smoke, NEC
078	Belts (not conveyor)	010	Floor; walking surface-not underground
113	Blocking	105	Forklift/stacker/tractor/powerd carrier
002	Bodily motion	040	Generators
003	Boilers/pressure vessels/hoses/ tanks	117	Ground
006	Boxes, crates, cartons, toolbox	051	Hand tools not powered, NEC
009	Brattice curtain; plastic and canvas	057	Hand tools, powered, NEC
020	Brick, ceramic	058	Heat (Atmospheric and Environmental)
089	Broken rock, coal, ore, waste	069	Hoisting apparatus, NEC
019	Building/structure/boat/raft/ramp NEC	027	Ice
024	Caustic chemicals/chemical compnds NEC	056	Impactor, Tamper
090	Caving rock/coal/ore/waste/ bentonite	068	Jack-mechanical/hydraul/air-not longwall
125	Cement Products	031	Kiln products/incl buildup to be removed
065	Chain hoist	059	Kilns; milting furnaces and retorts
066	Electric hoist	049	Knife, machete
079	Chains, ropes, cables (not conveyor)	072	Ladders, NEC
047	Chisel	091	Landslide (surface only)
034	Chutes and slides	073	Liquids, NEC
030	Coal (processed)	074	Machines, NEC
033	Coal and petroleum products, NEC	001	Live animals/insects/birds/ reptiles
029	Cold (atmospheric, environmental) NEC	036	Longwall conveyor
008	Containers, NEC (baskets, oil cans)	067	Longwall supports; jacks/chocks/ ram jack
038	Conveyors, NEC	094	Loose dirt and mud
062	Cranes, derricks	081	Mechanical power transmission eqp NEC
111	Cribbing	086	Metal cover/guard/door/gate/mat/ canopy
048	Crowbar/pry/scaling bar/RR bar/ steel bar	088	Metal, NEC (Pipe, wire, nails)
014	Dams, locks, ponds, bridges etc.		
012	Doors (incl ug ventiltn)/mandoor/ airlock		
<b>Code</b>	<b>Description</b>		
082	Drill steel (all kinds)		
055	Drill, percussive		

**Source of Injury or Illness Reference**  
**MSHA Form 7000-50b, Item 12**

<b>Code</b>	<b>Description</b>		
		118	Stairs/steps-stone/wood/dirt/ steel/other
032	Methane gas (in mines and processed)	107	Stand gauge rail car/motor/equip (surf)
075	Milling/Cleaning Plant/Breaker Machines	102	Steam
123	Mine floor, bottom, footwall	084	Steel rail-all sizes/IBeams/HBeams/frog
015	Mine headframe	011	Steps, stairs
108	Mine jeep/car; kersey/jitney/S&S tractor	052	Stone/wheel grinder/buffer/ polisher/waxr
025	Mine rescue/self rescue equip/safty belt	013	Storage tanks/bins, portable surge bins
095	Mineral items, NEC	119	Street, road
127	Miscellaneous, NEC	076	Surface mining machines
085	Molten metal-hot pellets, hot slag	017	Towers, poles, etc.
039	Motors	041	Transformers, converters
071	Moveable ladders	077	Underground mining machines
106	Narrow gauge rail car/motor/equip (ug)	124	Underground, NEC
096	Noise, NEC	110	Vehicles, NEC
109	Nonpowered vehicles	126	Water
023	Noxious mine gases, NEC	018	Wharfs, docks, etc.
061	Other heating equip NEC catalitic	087	Wheels from cars or trucks of any size
022	Oxygen deficient atmosphere	116	Wood items, NEC
114	Pallets	120	Working surfaces outside, NEC
103	Passenger cars and pickup trucks	050	Wrench; all types
097	Plants, trees, vegetation	104	Young Buggy/Hwy ore carier/lrg truck/bus
112	Posts, Caps, Headers, Timber		
053	Power saw, band saw		
092	Pulveriz mineral/fine particle/mine dust		
098	Pump/fan/compressor/engine/ turbine, NEC		
100	Radiating substances of equipment, NEC		
099	Radioactive ore (inj is from radiation)		
115	Railroad ties		
083	Roof (Rock) bolts		
007	Rubber/glass/plastic/fiberglass/ fabric		
093	Sand or gravel or shell		
016	Scaffold/staging/platform/catwalk /gantry		
037	Shaking and vibrating conveyor		
122	Side or rib		
028	Snow		
101	Soaps/detergents/cleaning Compounds/NEC		
060	Space heaters (Salamander)		

**Code Description**

**Nature of Injury or Illness Reference**  
**MSHA Form 7000-50b, Item 13**

**Code Description**

100	Amputation or enucleation
292	Anthracosis
291	Asbestosis
110	Asphyxia/strangulation/drowning/suffocat
301	Burn from electric arc-not contact burn
120	Burn or scald (heat/hot substances)
130	Burn, chemical
350	Cerebral hemorrhage -- not concussion
293	Coal workers pneumoconiosis/black lung
140	Concussion -- brain, cerebral
150	Contagious/infectious disease-occupatnl
160	Contusion, bruise -- intact skin surface
170	Crushing
180	Cut/laceration/puncture/opn wound/infect
190	Dermatitis/Rash/skin/tissueinflammation
200	Dislocation
320	Dust in eyes or other particles
210	Electric shock, electrocution
360	Electrical burn -- contact burn
250	Environmental heat-not sunburn/radiation
220	Fracture, (FX), chip
230	Freezing/frostbite/exposure to low temp
240	Hearing loss, or impairment
340	Heart attack
260	Hernia; rupture - inguinal/noninguinal
270	Inflam/irritation of joint/tendon/muscle
302	Laser burn
303	Lung cancer, ionizing radiation
370	Multiple injuries
380	Occupational diseases,N.E.C.
390	Other injury, N.E.C.
290	Other Pneumoconiosis N.E.C.
300	Other radiation effects, N.E.C.
280	Poisoning, systemic
310	Scratch, abrasion (superficial wound)
294	Silicosis
330	Sprain/strain/twist/tear/rupt disc/whipl
304	Sunburn
400	Unclassified, not determined pain/ache



MINE SAFETY AND HEALTH ACCIDENT/ILLNESS INVESTIGATION HANDBOOK

NOTES

MINE SAFETY AND HEALTH ACCIDENT/ILLNESS INVESTIGATION HANDBOOK

Appendix 20

Accident Investigation Data-Independent Contractor Information,  
MSHA Form 7000-50c

Accident Investigation Data - Independent Contractor Information

U.S. Department of Labor

Event Number:

Mine Safety and Health Administration

Independent Contractor Information: 1			
1. Company Name:		2. MSHA ID Number:	
4. Nature of Contract Work:		3. Type of Independent Contractor:	
		5. Number of Independent Contractor employees On-Site at Time of Accident:	
		a. Underground:    b. Surface:	
6. Independent Contractor Officials:			
On-Site/Other:	Title	Name	Address

Independent Contractor Information: 2			
1. Company Name:		2. MSHA ID Number:	
4. Nature of Contract Work:		3. Type of Independent Contractor:	
		5. Number of Independent Contractor employees On-Site at Time of Accident:	
		a. Underground:    b. Surface:	
6. Independent Contractor Officials:			
On-Site/Other:	Title	Name	Address

Independent Contractor Information: 3			
1. Company Name:		2. MSHA ID Number:	
4. Nature of Contract Work:		3. Type of Independent Contractor:	
		5. Number of Independent Contractor employees On-Site at Time of Accident:	
		a. Underground:    b. Surface:	
6. Independent Contractor Officials:			
On-Site/Other:	Title	Name	Address

## NOTES

**Type of Independent Contractor  
(Type of Work)  
MSHA Form 7000-50c, Item 3**

**Code Description**

04	Construction of dams
03	Demolition of mine facilities
09	Drilling and blasting
06	Equipment installation-i.e., crusher/mill
05	Excavating/earthmoving activity with mobile equipment
08	Material handling within mine property
01	Mine development incl shaft, slope sinking
10	Other Types of Work N.E.C.
02	Reconstruction/Construction of mine facilities
07	Service/repair site equipment for > 5 continuous days

MINE SAFETY AND HEALTH ACCIDENT/ILLNESS INVESTIGATION HANDBOOK

NOTES

Accident Investigation Data - Methane Ignition/Explosion  
Information, MSHA Form 7000-50d

## Accident Investigation Data - Methane Ignition/Explosion Information

U.S. Department of Labor

Event Number: 

Mine Safety and Health Administration

## A. Section Information

1. Ignition or Explosion:		2. Location of Ignition/Explosion:	
a. Ignition	b. Explosion	a. Description:	b. MMU Number:
3. Type of Mining:		4. Extended Cut Approved in: (Coal only)	
Development	Retreat	Ventilation Plan	Roof Control Plan
5. Extended cut used at time of accident?		6. Depth extended cut approved(in feet):	
Yes No		7. Depth of extended cut at time of accident (in feet):	

## B. Dust Suppression Information

8. Water Spray Parameters:	
a. Number of water sprays required in ventilation plan:	b. Number of water sprays operable at time of ignition:
c. Water pressure required in ventilation plan (in PSI):	d. Water pressure measured during investigation (in PSI):
e. Water flow rate required in ventilation plan (in GPM):	f. Water flow rate measured during investigation (in GPM):
g. Type of water spray system (include type of scrubber and fan system):	h. Exhaust system velocity (in FPM):
Description	

## C. Face Ventilation Information

9. Ventilation Configuration:	
a. Exhaust	Blowing
10. Ventilation control devices at time of accident:	
a. Auxiliary Fan/Tubing	b. Curtain
Other ventilation controls (describe):	
11. Distance from inby end of ventilation control to face:	
a. Required in Ventilation Plan (ft.)	b. At time of accident (ft.)
12. Air Quantities (in CFM):	
a. Air quantity required at LOC or pillar line:	b. Air quantity measured at LOC or pillar line:
c. Air quantity required at face or reaching longwall:	d. Air quantity measured at face or longwall:
e. Measured diffuser fan capacity:	f. Measured scrubber quantity:

## D. Methane Information

13. Methane Liberation	
a. On Section (cubic feet each 24 hrs):	b. Category (Metal and Nonmetal only):
	I II III IV V VI
14. Source of Methane Accumulation:	
a. Normal Liberation	b. Feeder
c. Other(Describe):	
d. Description of feeder location (if applicable):	
15. Was methane monitor functioning properly ? Ye No N/A	
16. Equipment involved maintained in permissible condition? Ye No N/A	
17. Location of methane monitor sensing head:	
a. Right side	b. Left Side
c. Center	d. Distance From Face (in inches)
18. Barometric Pressure:	
a. Measurement (in/hg)	b. Rising
	Falling
	Steady

## E. Bit Information

19. Bit Type:	
20. Bit Configuration:	
21. Condition of Bits:	

## F. Other Information

22. Energy Source:	
a. Frictional	b. Electrical
c. Cutting/Welding	d. Smoking
e. Undetermined	f. Other (describe):
23. Coke samples taken:	
Yes	No
24. Other Technical Data:	

## NOTES

## Accident Investigation Data - Unintentional Fall Of Roof/Back, Rib or Face, MSHA Form 7000-50f

## Accident Investigation Data - Unintentional Fall of Roof/Back, Rib, or Face

## U.S. Department of Labor

Event Number: 

Mine Safety and Health Administration

**A. General Information**

1. Type of Fall:										M/NM Only									
a. Roof/Back			b. Rib			c. Face			d. Outburst			e. Rockburst							
2. Dimension of Fall:												3. Width of Entry, Room, etc:							
a. Length		Feet		b. Width		Feet		c. Thickness		Feet		Inches		Feet		Inches			
4. Immediate Roof/Back Information:										Feet		Inches							
a. Thickness														b. Strata Composition:					
5. Main Roof/Back Information:										Feet									
a. Thickness														b. Strata Composition:					
6. Was the fall above the anchorage horizon of the bolts?										7. Did the fall affect ventilation resulting in less than required quantity or quality?									
Yes				No				N/A				Yes				No			
8. Did the fall affect the passage of workers? (entrapment)																			
Yes				No															
9. Did miners have indication of the pending fall?																			
Yes				No															
10. If indication was given, what type?																			

**B. Fall on Working Section/Active Face Area**

11. Type of Roof Support:									
12. Type of ATRS (Coal only):									
13. Type of Original Support in Fall Area:									
14. Distance Between Fall and Face:									
		Feet				Inches			

**C. Fall Outby Working Section/Previously Developed Area**

15. Location and Type of Entry ( intake, return, main haulage, etc. ):									
16. Approximate Date of Development ( MM/DD/YYYY; Date: ___/___/___ )									
17. Type of Original Support in Fall Area:									

**D. Operator's Investigation**

18. Did the operator investigate the fall?									
Yes				No					
19. What did the operator determine to be the cause of the fall?									

20. What steps did the operator take to prevent a similar occurrence?

**E. Plan Revisions**

21. Are plan revisions anticipated (Coal only)?									
Yes				No					